SANTA CLARA VALLEY WATER DISTRICT
PRECIPITATION GAGE DATA AND DEPTH-DURATION-FREQUENCY ANALYSIS

INTRODUCTION

As of 2011, there are 40 Santa Clara Valley Water District (SCVWD) precipitation gage stations within the SCVWD watersheds. Figure 1 shows the 40 precipitation gage stations within SCVWD watersheds. Station 6023 at Curtner Ranch, installed in 1951, is the oldest gage. Most of the gages (>32) were installed from 1960 to 1980. The average length of time for data recording is more than 30 years. In 2004, the SCVWD completed a comprehensive precipitation gage depth-duration-frequency analysis using recorded data up until 2003 (Saah et. al 2004). The purpose of this study is to update the 2004 depth-duration-frequency analysis with latest recorded precipitation data from year 2004 to 2011.

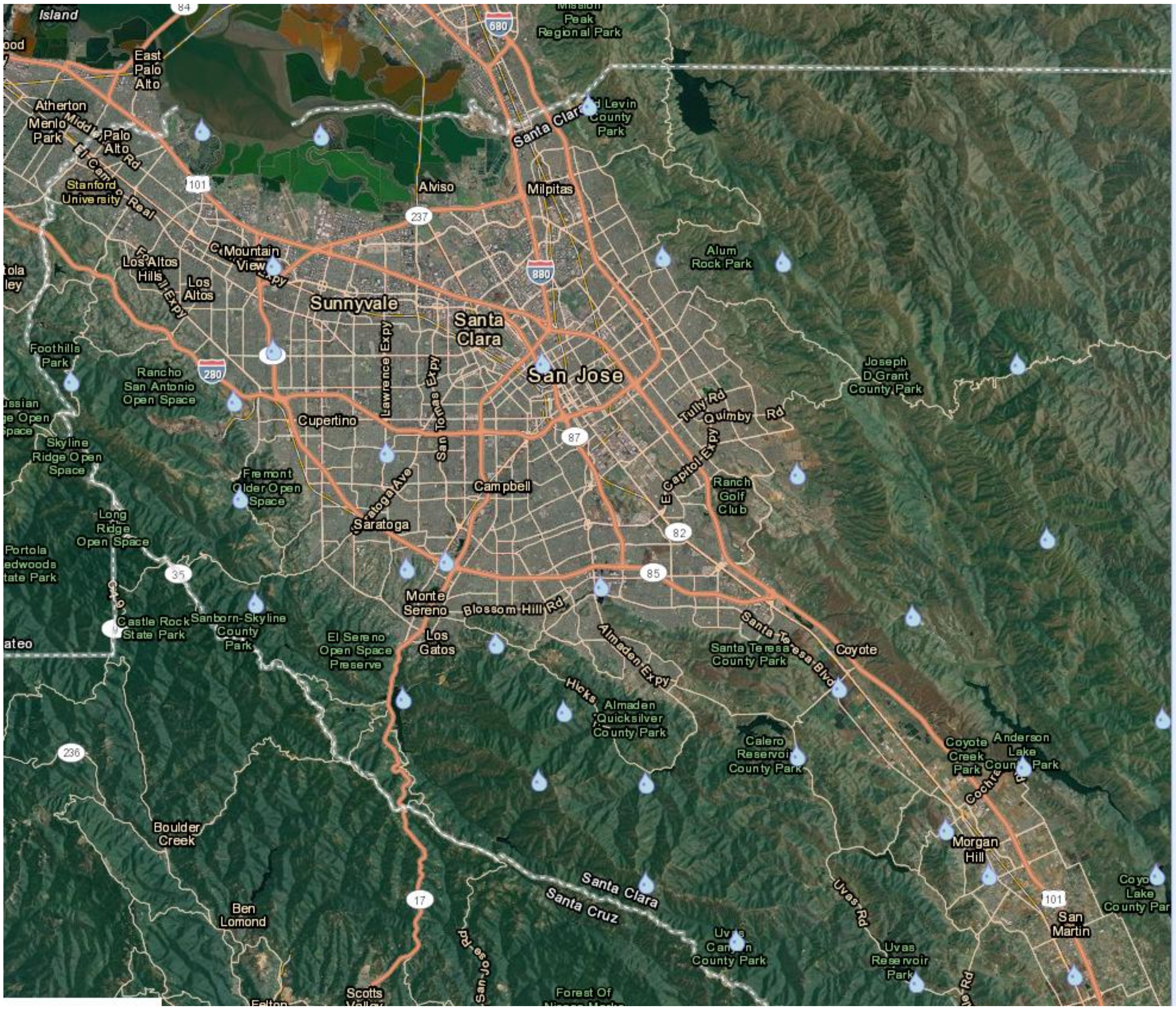

Figure 1: Precipitation Gage Location Map.

Precipitation Gage Station Statistics

Saah et. al. (2004) developed spread sheet (Excel files) for precipitation duration frequency analysis on all 40 existing precipitation stations using recorded data until 2003. Applied Saah's spread sheet with adding the new recorded precipitation data from 2004 to 2011, all 40 existing precipitation station precipitation duration frequency analysis were updated. Appendix A: Tables A1 to A40 list all 40 precipitation stations precipitation duration frequency analysis results based on data recorded at each station. Appendix B: Figures B1 to B40 presents all 40 precipitations predicted rainfall intensity-duration-frequency relationship based on data recorded at each station.

Return Period-Duration-Specific Equation (TDS)

Precipitation gage station with reasonable lengths of recorded data (>25 yrs) can provide statistical results with a higher degree of confidence. For ungaged watershed areas, the precipitation statistical prediction can be estimated from precipitation gage stations within the same hydrometeorology region. A TDS regression equation was derived with mean annual precipitation (MAP) map (Saah and Nahn, 1989), using all 40 precipitation gage station precipitation duration frequency analysis results (Tables A1 to A40) can predict various frequency and duration (within the data analysis range) precipitation results at any location within the entire SCVWD watershed area. The following TDS regression equation is used to calculate various frequency and duration precipitation at any location within the entire SCVWD watershed:

$$P_{f,d} = A_{f,d} + B_{f,d} \times MAP \qquad (1)$$

Where:

$P_{f,d}$ = precipitation depth in inches for given frequency and duration

f = frequency (in %)

d = duration in hours

MAP = mean annual precipitation in inches

$A_{f,d}$, $B_{f,d}$ = regression constants and coefficients that were derived from the regression analysis based on all 40 precipitation gage station precipitation duration frequency analysis results for each given frequency and duration. Tables 1 and 2 show the values $A_{f,d}$, $B_{f,d}$ under various frequencies and durations.

Table 1: Values of $A_{f,d}$ under various frequency and duration conditions in Equation 1

	Duration in hours										
Frequency	0.25 Hr	0.5 Hr	1 Hr	2 Hr	3 Hr	6 Hr	12 Hr	24 Hr	48 Hr	72 Hr	96 Hr
50%	0.1431	0.1737	0.1808	0.2207	0.2519	0.2482	0.1498	-0.0703	-0.1426	-0.1751	-0.2371
20%	0.2312	0.2627	0.2645	0.3080	0.3317	0.3028	0.1976	-0.0290	-0.0584	-0.1714	-0.2276
10%	0.2889	0.3202	0.3230	0.3646	0.3775	0.3195	0.2191	0.0028	0.0227	-0.1569	-0.2119
4%	0.3601	0.3904	0.3975	0.4338	0.4295	0.3277	0.2390	0.0452	0.1386	-0.1318	-0.1875
2%	0.4116	0.4410	0.4527	0.4835	0.4649	0.3272	0.2501	0.0776	0.2301	-0.1104	-0.1677
1%	0.4618	0.4901	0.5074	0.5317	0.4980	0.3228	0.2588	0.1102	0.3239	-0.0876	-0.1471
0.50%	0.5111	0.5381	0.5616	0.5788	0.5294	0.3153	0.2657	0.1432	0.4194	-0.0638	-0.1262
0.20%	0.5752	0.6003	0.6329	0.6398	0.5687	0.3016	0.2726	0.1871	0.5478	-0.0312	-0.0981
0.10%	0.6231	0.6468	0.6868	0.6851	0.5972	0.2888	0.2764	0.2207	0.6464	-0.0058	-0.0766
0.01%	0.7801	0.7982	0.8656	0.8326	0.6861	0.2353	0.2827	0.3341	0.9805	0.0812	-0.0049

Table 2: Values of $B_{f,d}$ under various frequency and duration conditions in Equation 1

	Duration in hours										
Frequency	0.25 Hr	0.5 Hr	1 Hr	2 Hr	3 Hr	6 Hr	12 Hr	24 Hr	48 Hr	72 Hr	96 Hr
50%	0.0044	0.0072	0.0134	0.0237	0.0320	0.0518	0.0776	0.1107	0.1455	0.1663	0.1833
20%	0.0042	0.0078	0.0159	0.0290	0.0402	0.0683	0.1034	0.1455	0.1909	0.2231	0.2468
10%	0.0038	0.0079	0.0170	0.0318	0.0450	0.0786	0.1188	0.1653	0.2153	0.2552	0.2840
4%	0.0033	0.0079	0.0180	0.0350	0.0506	0.0910	0.1368	0.1877	0.2418	0.2912	0.3268
2%	0.0028	0.0078	0.0186	0.0370	0.0543	0.0997	0.1494	0.2029	0.2592	0.3156	0.3563
1%	0.0023	0.0077	0.0190	0.0389	0.0579	0.1082	0.1613	0.2170	0.2751	0.3382	0.3841
0.50%	0.0018	0.0076	0.0194	0.0407	0.0613	0.1164	0.1727	0.2304	0.2897	0.3596	0.4107
0.20%	0.0011	0.0073	0.0198	0.0428	0.0655	0.1270	0.1872	0.2471	0.3077	0.3862	0.4444
0.10%	0.0005	0.0071	0.0200	0.0444	0.0686	0.1349	0.1979	0.2592	0.3205	0.4055	0.4689
0.01%	-0.0014	0.0063	0.0204	0.0491	0.0784	0.1603	0.2319	0.2968	0.3590	0.4654	0.5467

Table 3 and 4 present the standard deviation in inches and linear regression correlation coefficient between estimated precipitation depths using Equation 1 with Tables 1 and 2 and results determined from duration frequency analysis from all 40 precipitation station historical data up to year 2011 (Tables A1 to A40). The correlation coefficients in Table 4 shows higher correlation occurs when there is a higher duration and a higher frequency.

Table 3: Standard deviation (inches) between estimated precipitation depths using Equation 1 with Tables 1 and 2 and values determined from duration frequency analysis from all 40 precipitation station historical data up to year 2011 (Tables A1 to A40).

	Duration in hours										
Frequency	0.25 Hr	0.5 Hr	1 Hr	2 Hr	3 Hr	6 Hr	12 Hr	24 Hr	48 Hr	72 Hr	96 Hr
50%	0.03	0.03	0.05	0.07	0.09	0.13	0.19	0.23	0.30	0.34	0.37
20%	0.03	0.05	0.07	0.11	0.14	0.21	0.28	0.36	0.47	0.55	0.59
10%	0.04	0.06	0.08	0.13	0.17	0.27	0.35	0.44	0.59	0.69	0.74
4%	0.05	0.07	0.10	0.17	0.22	0.35	0.44	0.53	0.72	0.87	0.93
2%	0.06	0.09	0.12	0.19	0.25	0.40	0.51	0.60	0.82	0.99	1.08
1%	0.07	0.10	0.14	0.22	0.29	0.46	0.58	0.67	0.92	1.12	1.23
0.50%	0.08	0.11	0.15	0.25	0.33	0.51	0.65	0.73	1.02	1.24	1.38
0.20%	0.09	0.13	0.18	0.29	0.37	0.59	0.74	0.82	1.14	1.40	1.58
0.10%	0.10	0.15	0.20	0.32	0.41	0.64	0.82	0.88	1.24	1.53	1.74
0.01%	0.15	0.20	0.26	0.42	0.54	0.83	1.05	1.10	1.56	1.94	2.28

Table 4: Correlation coefficient between estimated precipitation depths using Equation1 with Tables 1 and 2 and values determined from duration frequency analysis from all 40 precipitation station historical data up to year 2011 (Tables A1 to A40).

	Duration in hours										
Frequency	0.25 Hr	0.5 Hr	1 Hr	2 Hr	3 Hr	6 Hr	12 Hr	24 Hr	48 Hr	72 Hr	96 Hr
50%	0.834	0.889	0.937	0.952	0.959	0.962	0.967	0.974	0.975	0.975	0.976
20%	0.769	0.839	0.905	0.928	0.938	0.946	0.958	0.965	0.964	0.964	0.967
10%	0.684	0.785	0.880	0.910	0.923	0.935	0.951	0.960	0.958	0.958	0.961
4%	0.535	0.703	0.844	0.885	0.903	0.922	0.942	0.954	0.950	0.950	0.954
2%	0.415	0.639	0.814	0.866	0.890	0.914	0.936	0.951	0.944	0.945	0.948
1%	0.304	0.576	0.784	0.848	0.876	0.906	0.929	0.947	0.938	0.940	0.943
0.50%	0.209	0.517	0.753	0.829	0.863	0.899	0.923	0.944	0.933	0.935	0.938
0.20%	0.108	0.447	0.711	0.805	0.846	0.891	0.916	0.939	0.925	0.928	0.931
0.10%	0.048	0.400	0.680	0.787	0.834	0.885	0.911	0.936	0.920	0.924	0.926
0.01%	0.085	0.274	0.582	0.732	0.798	0.868	0.894	0.926	0.902	0.909	0.909

24-Hour Rainfall Distribution

One percent 24-hour precipitation is the standard input data for SCVWD in computing 1% design flood flows within SCVWD watershed. Therefore, a 24-hour rainfall distribution with 15 minutes time interval is developed for the entire SCVWD watershed. This distribution is developed under the average value of yearly peak values on each given time interval for all 40

SCVWD precipitation gage recorded data within the SCVWD watershed. The peak distribution is assumed at the center of the distribution. Table 5 presents the distribution in %. Figure 2 presents the rainfall distribution curve. This rainfall distribution is applied in the HEC-HMS model simulation to compute 24-hr, 1% and 10% total precipitation depths from Equation 1 and Tables 1 and 2.

Table 5: 24-Hour Duration Rainfall Distribution

Hour	Percentage	Hour	Percentage	Hour	Percentage
0.25	0.380690544	8.25	0.944907606	16.25	0.894512534
0.50	0.387088704	8.50	0.970105142	16.50	0.869314998
0.75	0.393486865	8.75	0.995302679	16.75	0.844117462
1.00	0.399885025	9.00	1.130434640	17.00	0.818919925
1.25	0.406283186	9.25	1.331668571	17.25	0.793722389
1.50	0.412681346	9.50	1.445002066	17.50	0.768524853
1.75	0.419079506	9.75	1.558335561	17.75	0.743327317
2.00	0.425477667	10.00	1.671669057	18.00	0.625338929
2.25	0.431875827	10.25	1.785002552	18.25	0.521450073
2.50	0.438273988	10.50	1.807260797	18.50	0.515051912
2.75	0.444672148	10.75	2.180648650	18.75	0.508653752
3.00	0.451070308	11.00	2.398011783	19.00	0.502255592
3.25	0.457468469	11.25	2.724056483	19.25	0.495857431
3.50	0.463866629	11.50	2.834538644	19.50	0.489459271
3.75	0.470264790	11.75	3.624487494	19.75	0.483061110
4.00	0.476662950	12.00	9.517033488	20.00	0.476662950
4.25	0.483061110	12.25	3.624487494	20.25	0.470264790
4.50	0.489459271	12.50	2.834538644	20.50	0.463866629
4.75	0.495857431	12.75	2.724056483	20.75	0.457468469
5.00	0.502255592	13.00	2.398011783	21.00	0.451070308
5.25	0.508653752	13.25	2.180648650	21.25	0.444672148
5.50	0.515051912	13.50	1.807260797	21.50	0.438273988
5.75	0.521450073	13.75	1.785002552	21.75	0.431875827
6.00	0.625338929	14.00	1.671669057	22.00	0.425477667
6.25	0.743327317	14.25	1.558335561	22.25	0.419079506
6.50	0.768524853	14.50	1.445002066	22.50	0.412681346
6.75	0.793722389	14.75	1.331668571	22.75	0.406283186
7.00	0.818919925	15.00	1.130434640	23.00	0.399885025
7.25	0.844117462	15.25	0.995302679	23.25	0.393486865
7.50	0.869314998	15.50	0.970105142	23.50	0.387088704
7.75	0.894512534	15.75	0.944907606	23.75	0.380690544
8.00	0.919710070	16.00	0.919710070	24.00	0.375892000

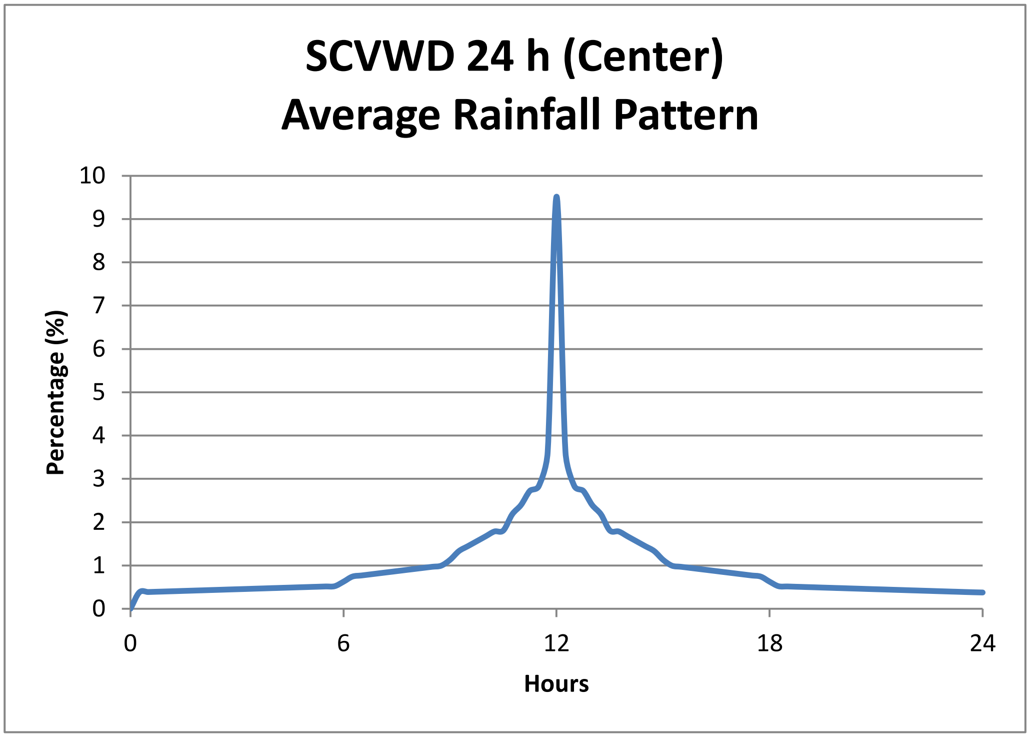

Figure 2: SCVWD 24-Hour Duration Rainfall Distribution

Conclusions

This study updates the 2004 depth-duration-frequency analysis (Saah et. al. 2004) with latest recorded precipitation data from year 2004 to 2011. The end product is a TDS regression equation (Equation 1) with Tables 1 and 2. By applying Equation 1 with Tables 1 and 2 and MAP, precipitation depth can be estimated at any given locations within SCVWD watershed for a selected frequency (50%, 20%, 10%, 4%, 2%, 1%, 0.5%, 0.2%, 0.1%, and 0.01%) and duration (0.25 h, 0.5 h, 1 h, 2 h, 3 h, 6 h, 12 h, 24 h, 48h, 73 h and 96 h). All 40 station precipitation data duration frequency analysis results are listed in Appendix and plotted in Appendix B.

Table 5 and Figure 2 provide a 24-hour duration rainfall distribution pattern. This distribution pattern could be applied for 24-hour hydrology model simulation (a standard practice for SCVWD hydrology model simulation).

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Appendix A: SCVWD Precipitation Station Precipitation Duration Frequency Analysis Result

Table A-1: Alamitos Precipitation Station (6001) precipitation duration frequency analysis results (inches) based on data recorded from year 1977 to 2011

	Duration in hours										
Frequency	0.25 Hr	0.5 Hr	1 Hr	2 Hr	3 Hr	6 Hr	12 Hr	24 Hr	48 Hr	72 Hr	96 Hr
50%	0.21	0.29	0.41	0.67	0.85	1.24	1.57	1.89	2.41	2.72	3.03
20%	0.29	0.41	0.55	0.86	1.11	1.65	2.12	2.65	3.44	3.91	4.33
10%	0.35	0.48	0.65	0.97	1.25	1.88	2.45	3.12	4.04	4.62	5.10
4%	0.41	0.57	0.76	1.10	1.41	2.15	2.82	3.66	4.73	5.44	5.99
2%	0.45	0.63	0.84	1.18	1.52	2.33	3.08	4.04	5.21	6.01	6.60
1%	0.49	0.69	0.91	1.26	1.62	2.50	3.32	4.40	5.66	6.55	7.19
0.50%	0.53	0.75	0.99	1.33	1.72	2.67	3.55	4.74	6.09	7.07	7.75
0.20%	0.58	0.83	1.08	1.42	1.84	2.87	3.84	5.19	6.63	7.73	8.46
0.10%	0.62	0.89	1.15	1.49	1.93	3.02	4.06	5.51	7.02	8.21	8.98
0.01%	0.75	1.08	1.39	1.69	2.19	3.48	4.73	6.56	8.27	9.74	10.62

Table A-2: Almaden Watershed Precipitation Station (6004) precipitation duration frequency analysis results (inches) based on data recorded from year1972 to 2011

	Duration in hours										
Frequency	0.25 Hr	0.5 Hr	1 Hr	2 Hr	3 Hr	6 Hr	12 Hr	24 Hr	48 Hr	72 Hr	96 Hr
50%	0.24	0.38	0.58	0.97	1.29	1.98	2.70	3.53	4.64	5.31	5.85
20%	0.31	0.44	0.70	1.18	1.58	2.38	3.28	4.44	6.05	7.02	7.94
10%	0.35	0.48	0.77	1.30	1.75	2.60	3.58	4.96	6.86	8.03	9.21
4%	0.40	0.51	0.84	1.42	1.94	2.85	3.90	5.55	7.78	9.20	10.72
2%	0.43	0.54	0.88	1.51	2.07	3.02	4.11	5.96	8.40	10.00	11.78
1%	0.46	0.56	0.92	1.59	2.20	3.18	4.29	6.34	8.99	10.76	12.79
0.50%	0.49	0.58	0.96	1.66	2.32	3.33	4.46	6.70	9.54	11.48	13.76
0.20%	0.52	0.60	1.01	1.75	2.47	3.51	4.67	7.15	10.23	12.39	15.01
0.10%	0.55	0.62	1.04	1.81	2.58	3.65	4.82	7.48	10.73	13.06	15.93
0.01%	0.63	0.66	1.14	2.01	2.93	4.06	5.25	8.50	12.29	15.17	18.89

Table A-3: Biel Ranch Precipitation Station (6008) precipitation duration frequency analysis results (inches) based on data recorded from year 1965 to 2011

	Duration in hours										
Frequency	0.25 Hr	0.5 Hr	1 Hr	2 Hr	3 Hr	6 Hr	12 Hr	24 Hr	48 Hr	72 Hr	96 Hr
50%	0.20	0.26	0.37	0.54	0.69	1.05	1.38	1.76	2.23	2.49	2.77
20%	0.29	0.35	0.46	0.69	0.88	1.37	1.83	2.37	2.97	3.33	3.69
10%	0.34	0.40	0.51	0.78	1.00	1.56	2.11	2.74	3.40	3.81	4.23
4%	0.40	0.45	0.56	0.89	1.13	1.78	2.44	3.18	3.90	4.37	4.85
2%	0.45	0.49	0.60	0.97	1.23	1.94	2.67	3.48	4.24	4.75	5.28
1%	0.49	0.53	0.63	1.04	1.32	2.09	2.89	3.77	4.56	5.11	5.68
0.50%	0.53	0.56	0.66	1.12	1.40	2.23	3.10	4.05	4.86	5.45	6.06
0.20%	0.59	0.60	0.70	1.21	1.51	2.41	3.38	4.41	5.24	5.89	6.55
0.10%	0.62	0.63	0.72	1.28	1.59	2.54	3.58	4.67	5.52	6.20	6.90
0.01%	0.75	0.73	0.80	1.49	1.85	2.97	4.23	5.51	6.40	7.19	8.01

Table A-4: Castro Valley Precipitation Station (6015) precipitation duration frequency analysis results (inches) based on data recorded from year 1966 to 2011

	Duration in hours										
Frequency	0.25 Hr	0.5 Hr	1 Hr	2 Hr	3 Hr	6 Hr	12 Hr	24 Hr	48 Hr	72 Hr	96 Hr
50%	0.25	0.36	0.52	0.79	1.02	1.52	2.05	2.64	3.38	3.84	4.19
20%	0.37	0.51	0.68	1.03	1.36	2.04	2.84	3.58	4.53	5.23	5.62
10%	0.46	0.61	0.78	1.18	1.56	2.35	3.30	4.09	5.15	6.00	6.42
4%	0.58	0.73	0.90	1.35	1.80	2.72	3.83	4.66	5.81	6.86	7.33
2%	0.66	0.83	0.98	1.46	1.96	2.97	4.18	5.04	6.24	7.44	7.94
1%	0.75	0.92	1.05	1.57	2.12	3.21	4.52	5.39	6.63	7.97	8.51
0.50%	0.83	1.01	1.13	1.68	2.27	3.43	4.84	5.72	7.00	8.46	9.04
0.20%	0.94	1.13	1.22	1.81	2.46	3.72	5.24	6.12	7.44	9.08	9.71
0.10%	1.03	1.22	1.29	1.91	2.60	3.93	5.53	6.41	7.75	9.52	10.19
0.01%	1.32	1.53	1.52	2.21	3.06	4.60	6.44	7.30	8.69	10.89	11.67

Table A-5: Guadalupe Slough Precipitation Station (6016) precipitation duration frequency analysis results (inches) based on data recorded from year1976 to 2011

	Duration in hours										
Frequency	0.25 Hr	0.5 Hr	1 Hr	2 Hr	3 Hr	6 Hr	12 Hr	24 Hr	48 Hr	72 Hr	96 Hr
50%	0.19	0.26	0.36	0.50	0.62	0.82	1.00	1.13	1.54	1.74	1.86
20%	0.26	0.34	0.48	0.68	0.84	1.09	1.36	1.61	2.16	2.43	2.63
10%	0.30	0.38	0.54	0.79	0.96	1.25	1.57	1.91	2.51	2.79	3.05
4%	0.35	0.42	0.62	0.92	1.11	1.43	1.81	2.27	2.91	3.19	3.52
2%	0.39	0.46	0.67	1.01	1.21	1.55	1.98	2.53	3.17	3.45	3.82
1%	0.42	0.49	0.72	1.10	1.30	1.66	2.14	2.78	3.42	3.69	4.11
0.50%	0.46	0.51	0.76	1.18	1.39	1.76	2.29	3.03	3.65	3.91	4.37
0.20%	0.50	0.55	0.82	1.29	1.50	1.90	2.48	3.35	3.93	4.18	4.69
0.10%	0.53	0.57	0.85	1.37	1.59	1.99	2.62	3.58	4.14	4.37	4.92
0.01%	0.62	0.65	0.98	1.62	1.85	2.29	3.07	4.35	4.79	4.94	5.62

Table A-6: Coe Park Precipitation Station (6017) precipitation duration frequency analysis results (inches) based on data recorded from year 1971 to 2011

	Duration in hours										
Frequency	0.25 Hr	0.5 Hr	1 Hr	2 Hr	3 Hr	6 Hr	12 Hr	24 Hr	48 Hr	72 Hr	96 Hr
50%	0.28	0.37	0.53	0.80	1.03	1.53	2.12	2.78	3.53	3.93	4.20
20%	0.35	0.45	0.65	1.00	1.30	1.96	2.81	3.58	4.77	5.31	5.92
10%	0.39	0.49	0.71	1.11	1.46	2.22	3.22	4.02	5.49	6.13	7.02
4%	0.44	0.55	0.78	1.23	1.63	2.51	3.69	4.51	6.32	7.07	8.37
2%	0.47	0.58	0.82	1.31	1.74	2.72	4.01	4.84	6.89	7.72	9.34
1%	0.51	0.61	0.86	1.39	1.85	2.91	4.32	5.14	7.43	8.33	10.28
0.50%	0.53	0.64	0.89	1.46	1.95	3.09	4.61	5.43	7.94	8.91	11.20
0.20%	0.57	0.68	0.93	1.55	2.07	3.31	4.98	5.77	8.58	9.65	12.40
0.10%	0.60	0.71	0.96	1.61	2.16	3.48	5.25	6.03	9.05	10.19	13.30
0.01%	0.69	0.79	1.05	1.80	2.44	4.00	6.11	6.79	10.52	11.89	16.23

Table A-7: Coit Ranch Precipitation Station (6018) precipitation duration frequency analysis results (inches) based on data recorded from year1965 to 2011

	Duration in hours										
Frequency	0.25 Hr	0.5 Hr	1 Hr	2 Hr	3 Hr	6 Hr	12 Hr	24 Hr	48 Hr	72 Hr	96 Hr
50%	0.22	0.31	0.46	0.73	0.98	1.44	2.04	2.62	3.39	3.84	4.22
20%	0.28	0.39	0.56	0.90	1.20	1.84	2.68	3.43	4.49	5.08	5.65
10%	0.32	0.42	0.63	1.01	1.32	2.07	3.06	3.92	5.14	5.79	6.48
4%	0.37	0.46	0.70	1.14	1.46	2.33	3.49	4.48	5.88	6.61	7.44
2%	0.40	0.49	0.76	1.23	1.55	2.51	3.79	4.87	6.38	7.17	8.10
1%	0.43	0.51	0.81	1.31	1.63	2.68	4.07	5.24	6.86	7.70	8.72
0.50%	0.46	0.53	0.86	1.39	1.70	2.83	4.33	5.59	7.31	8.20	9.31
0.20%	0.50	0.56	0.92	1.50	1.80	3.03	4.67	6.04	7.88	8.83	10.05
0.10%	0.53	0.58	0.96	1.57	1.86	3.17	4.91	6.36	8.29	9.29	10.59
0.01%	0.61	0.63	1.10	1.82	2.07	3.62	5.68	7.40	9.60	10.73	12.30

Table A-8: Coyote Precipitation Station (6021) precipitation duration frequency analysis results (inches) based on data recorded from year 1976 to 2011

	Duration in hours										
Frequency	0.25 Hr	0.5 Hr	1 Hr	2 Hr	3 Hr	6 Hr	12 Hr	24 Hr	48 Hr	72 Hr	96 Hr
50%	0.25	0.34	0.46	0.73	0.91	1.35	1.90	2.36	3.03	3.45	3.70
20%	0.35	0.45	0.60	0.94	1.19	1.78	2.49	3.09	4.09	4.56	4.89
10%	0.42	0.53	0.69	1.08	1.38	2.05	2.84	3.51	4.72	5.19	5.57
4%	0.50	0.62	0.80	1.25	1.61	2.38	3.25	4.00	5.46	5.90	6.34
2%	0.57	0.69	0.88	1.37	1.78	2.61	3.54	4.34	5.97	6.39	6.87
1%	0.63	0.76	0.95	1.49	1.94	2.84	3.81	4.66	6.46	6.84	7.35
0.50%	0.68	0.82	1.03	1.61	2.10	3.06	4.07	4.96	6.92	7.27	7.81
0.20%	0.76	0.90	1.13	1.77	2.31	3.34	4.40	5.34	7.52	7.80	8.39
0.10%	0.82	0.96	1.21	1.88	2.46	3.56	4.64	5.62	7.95	8.19	8.81
0.01%	1.01	1.17	1.46	2.26	2.97	4.25	5.41	6.50	9.34	9.40	10.10

Table A-9: Curtner Ranch Precipitation Station (6023) precipitation duration frequency analysis results (inches) based on data recorded from year 1951 to 2011

	Duration in hours										
Frequency	0.25 Hr	0.5 Hr	1 Hr	2 Hr	3 Hr	6 Hr	12 Hr	24 Hr	48 Hr	72 Hr	96 Hr
50%	0.25	0.34	0.46	0.65	0.80	1.06	1.33	1.58	1.95	2.27	2.50
20%	0.33	0.46	0.59	0.81	0.98	1.29	1.68	2.13	2.60	2.94	3.28
10%	0.38	0.53	0.67	0.90	1.07	1.42	1.88	2.48	3.00	3.33	3.74
4%	0.44	0.61	0.75	1.01	1.18	1.55	2.11	2.90	3.47	3.77	4.28
2%	0.48	0.67	0.81	1.08	1.25	1.63	2.26	3.19	3.80	4.07	4.66
1%	0.52	0.73	0.86	1.14	1.31	1.71	2.41	3.48	4.12	4.35	5.01
0.50%	0.56	0.78	0.92	1.21	1.37	1.78	2.54	3.75	4.42	4.62	5.36
0.20%	0.61	0.85	0.98	1.29	1.45	1.87	2.71	4.11	4.81	4.96	5.79
0.10%	0.64	0.90	1.03	1.35	1.50	1.93	2.83	4.38	5.10	5.21	6.11
0.01%	0.75	1.06	1.18	1.53	1.66	2.12	3.22	5.24	6.03	5.98	7.12

Table A-10: Dahl Ranch Precipitation Station (6024) precipitation duration frequency analysis results (inches) based on data recorded from year 1966 to 2011

	Duration in hours										
Frequency	0.25 Hr	0.5 Hr	1 Hr	2 Hr	3 Hr	6 Hr	12 Hr	24 Hr	48 Hr	72 Hr	96 Hr
50%	0.29	0.37	0.53	0.84	1.12	1.68	2.38	3.03	4.00	4.69	5.15
20%	0.38	0.48	0.68	1.06	1.37	2.11	3.03	3.99	5.31	6.28	7.04
10%	0.42	0.54	0.77	1.20	1.52	2.36	3.41	4.58	6.07	7.20	8.20
4%	0.47	0.62	0.89	1.36	1.69	2.66	3.86	5.29	6.94	8.26	9.57
2%	0.51	0.67	0.97	1.47	1.81	2.86	4.16	5.79	7.54	8.98	10.53
1%	0.54	0.72	1.05	1.58	1.92	3.06	4.45	6.27	8.10	9.67	11.45
0.50%	0.57	0.77	1.13	1.69	2.02	3.24	4.73	6.74	8.64	10.32	12.34
0.20%	0.60	0.84	1.23	1.82	2.16	3.48	5.08	7.34	9.31	11.14	13.48
0.10%	0.63	0.88	1.30	1.92	2.25	3.65	5.34	7.79	9.80	11.74	14.32
0.01%	0.71	1.04	1.54	2.25	2.55	4.21	6.15	9.22	11.35	13.61	17.03

Table A-11: Haskins Ranch Precipitation Station (6034) precipitation duration frequency analysis results (inches) based on data recorded from year 1964 to 2011

	Duration in hours										
Frequency	0.25 Hr	0.5 Hr	1 Hr	2 Hr	3 Hr	6 Hr	12 Hr	24 Hr	48 Hr	72 Hr	96 Hr
50%	0.26	0.38	0.54	0.77	0.94	1.26	1.60	1.99	2.45	2.81	3.06
20%	0.35	0.48	0.70	0.98	1.19	1.57	2.05	2.57	3.23	3.69	4.04
10%	0.40	0.54	0.78	1.10	1.33	1.75	2.32	2.91	3.69	4.19	4.60
4%	0.45	0.60	0.87	1.23	1.47	1.96	2.63	3.30	4.22	4.75	5.24
2%	0.49	0.64	0.93	1.32	1.57	2.10	2.85	3.57	4.58	5.14	5.67
1%	0.53	0.68	0.99	1.41	1.66	2.24	3.06	3.82	4.92	5.49	6.07
0.50%	0.56	0.72	1.04	1.49	1.75	2.36	3.27	4.06	5.25	5.83	6.45
0.20%	0.61	0.77	1.11	1.59	1.85	2.52	3.52	4.37	5.66	6.25	6.93
0.10%	0.64	0.80	1.15	1.66	1.93	2.63	3.71	4.59	5.96	6.56	7.27
0.01%	0.74	0.90	1.29	1.88	2.15	2.99	4.32	5.29	6.89	7.51	8.35

Table A-12: Johnson Ranch Precipitation Station (6036) precipitation duration frequency analysis results (inches) based on data recorded from year 1969 to 2011

	Duration in hours										
Frequency	0.25 Hr	0.5 Hr	1 Hr	2 Hr	3 Hr	6 Hr	12 Hr	24 Hr	48 Hr	72 Hr	96 Hr
50%	0.23	0.34	0.50	0.81	1.05	1.58	2.10	2.74	3.54	3.99	4.32
20%	0.31	0.43	0.62	1.01	1.34	2.09	2.88	3.73	4.88	5.69	6.28
10%	0.35	0.48	0.69	1.12	1.50	2.39	3.36	4.29	5.61	6.66	7.45
4%	0.41	0.54	0.76	1.24	1.68	2.73	3.93	4.92	6.43	7.76	8.82
2%	0.44	0.58	0.81	1.32	1.80	2.98	4.32	5.35	6.97	8.51	9.77
1%	0.48	0.62	0.86	1.40	1.92	3.21	4.70	5.74	7.47	9.21	10.67
0.50%	0.51	0.66	0.91	1.47	2.03	3.42	5.06	6.11	7.93	9.87	11.54
0.20%	0.56	0.71	0.96	1.56	2.17	3.70	5.53	6.58	8.50	10.70	12.64
0.10%	0.59	0.75	1.00	1.62	2.27	3.91	5.87	6.91	8.91	11.30	13.45
0.01%	0.70	0.86	1.12	1.82	2.58	4.55	6.97	7.95	10.16	13.18	16.01

Table A-13: Laguna Seca Precipitation Station (6037) precipitation duration frequency analysis results (inches) based on data recorded from year 1977 to 2011

	Duration in hours										
Frequency	0.25 Hr	0.5 Hr	1 Hr	2 Hr	3 Hr	6 Hr	12 Hr	24 Hr	48 Hr	72 Hr	96 Hr
50%	0.21	0.29	0.42	0.67	0.88	1.25	1.66	2.19	2.85	3.18	3.47
20%	0.28	0.38	0.55	0.92	1.21	1.83	2.48	3.11	4.01	4.54	5.01
10%	0.32	0.43	0.63	1.07	1.40	2.18	2.99	3.64	4.67	5.32	5.91
4%	0.37	0.48	0.71	1.25	1.62	2.61	3.60	4.23	5.41	6.21	6.95
2%	0.40	0.52	0.78	1.37	1.78	2.92	4.03	4.64	5.91	6.81	7.66
1%	0.43	0.56	0.83	1.49	1.92	3.21	4.44	5.02	6.38	7.38	8.34
0.50%	0.46	0.59	0.89	1.60	2.06	3.49	4.84	5.38	6.82	7.92	8.98
0.20%	0.50	0.63	0.96	1.75	2.24	3.86	5.36	5.83	7.37	8.59	9.80
0.10%	0.52	0.67	1.01	1.86	2.36	4.13	5.74	6.15	7.77	9.08	10.39
0.01%	0.60	0.76	1.17	2.20	2.77	5.00	6.97	7.16	9.01	10.62	12.26

Table A-14: Anderson Precipitation Station (6041) precipitation duration frequency analysis results (inches) based on data recorded from year 1975 to 2011

	Duration in hours										
Frequency	0.25 Hr	0.5 Hr	1 Hr	2 Hr	3 Hr	6 Hr	12 Hr	24 Hr	48 Hr	72 Hr	96 Hr
50%	0.23	0.33	0.46	0.71	0.91	1.30	1.70	2.24	2.87	3.26	3.52
20%	0.33	0.43	0.59	0.92	1.16	1.70	2.27	2.91	3.85	4.35	4.72
10%	0.39	0.49	0.66	1.05	1.30	1.92	2.61	3.28	4.40	4.97	5.44
4%	0.46	0.55	0.75	1.19	1.46	2.18	3.00	3.67	5.03	5.67	6.28
2%	0.51	0.60	0.81	1.29	1.57	2.36	3.27	3.94	5.45	6.14	6.86
1%	0.55	0.64	0.86	1.39	1.67	2.52	3.53	4.18	5.84	6.58	7.41
0.50%	0.60	0.67	0.91	1.48	1.77	2.68	3.77	4.40	6.21	7.00	7.94
0.20%	0.66	0.72	0.98	1.59	1.89	2.87	4.08	4.68	6.68	7.52	8.61
0.10%	0.70	0.75	1.03	1.68	1.98	3.02	4.31	4.88	7.01	7.89	9.10
0.01%	0.83	0.85	1.18	1.95	2.26	3.46	5.02	5.48	8.05	9.06	10.66

Table A-15: Lexington Precipitation Station (6042) precipitation duration frequency analysis results (inches) based on data recorded from year 1975 to 2011

	Duration in hours										
Frequency	0.25 Hr	0.5 Hr	1 Hr	2 Hr	3 Hr	6 Hr	12 Hr	24 Hr	48 Hr	72 Hr	96 Hr
50%	0.34	0.47	0.71	1.12	1.48	2.25	3.06	3.93	5.01	5.79	6.26
20%	0.42	0.58	0.88	1.40	1.83	2.87	3.89	5.18	6.74	8.09	8.74
10%	0.46	0.65	0.98	1.56	2.03	3.23	4.39	5.93	7.73	9.49	10.30
4%	0.51	0.72	1.10	1.76	2.26	3.65	4.97	6.81	8.86	11.15	12.18
2%	0.53	0.77	1.18	1.89	2.41	3.94	5.37	7.42	9.63	12.32	13.51
1%	0.56	0.82	1.25	2.02	2.55	4.22	5.76	8.00	10.35	13.43	14.80
0.50%	0.58	0.86	1.33	2.14	2.69	4.48	6.13	8.56	11.03	14.50	16.05
0.20%	0.61	0.92	1.42	2.30	2.86	4.81	6.60	9.27	11.88	15.88	17.67
0.10%	0.62	0.96	1.49	2.41	2.99	5.06	6.94	9.79	12.50	16.89	18.86
0.01%	0.67	1.08	1.70	2.78	3.37	5.82	8.03	11.45	14.44	20.15	22.75

Table A-16: Loma Prieta Precipitation Station (6044) precipitation duration frequency analysis results (inches) based on data recorded from year 1966 to 2011

	Duration in hours										
Frequency	0.25 Hr	0.5 Hr	1 Hr	2 Hr	3 Hr	6 Hr	12 Hr	24 Hr	48 Hr	72 Hr	96 Hr
50%	0.31	0.45	0.69	1.15	1.52	2.35	3.34	4.57	5.93	6.80	7.44
20%	0.39	0.55	0.85	1.42	1.90	3.08	4.56	6.10	7.71	9.04	9.87
10%	0.43	0.61	0.95	1.58	2.13	3.54	5.31	7.01	8.67	10.29	11.24
4%	0.48	0.68	1.05	1.77	2.40	4.08	6.21	8.07	9.73	11.67	12.78
2%	0.51	0.73	1.13	1.90	2.59	4.46	6.84	8.80	10.42	12.59	13.82
1%	0.54	0.77	1.20	2.03	2.77	4.83	7.45	9.50	11.06	13.44	14.79
0.50%	0.57	0.81	1.27	2.15	2.94	5.19	8.03	10.16	11.64	14.24	15.70
0.20%	0.60	0.87	1.35	2.30	3.16	5.65	8.78	11.01	12.37	15.23	16.83
0.10%	0.62	0.91	1.41	2.42	3.32	5.99	9.34	11.63	12.88	15.94	17.65
0.01%	0.70	1.03	1.61	2.78	3.84	7.09	11.13	13.61	14.45	18.12	20.20

Table A-17: Sunnyvale WPCP Precipitation Station (6048) precipitation duration frequency analysis results (inches) based on data recorded from year 1975 to 2011

	Duration in hours										
Frequency	0.25 Hr	0.5 Hr	1 Hr	2 Hr	3 Hr	6 Hr	12 Hr	24 Hr	48 Hr	72 Hr	96 Hr
50%	0.19	0.27	0.37	0.57	0.75	1.07	1.40	1.79	2.27	2.66	2.90
20%	0.28	0.36	0.48	0.71	0.93	1.34	1.85	2.41	3.11	3.66	4.07
10%	0.35	0.43	0.54	0.80	1.02	1.49	2.12	2.79	3.61	4.26	4.80
4%	0.43	0.50	0.61	0.89	1.13	1.66	2.43	3.24	4.20	4.96	5.68
2%	0.49	0.56	0.66	0.96	1.20	1.77	2.65	3.55	4.61	5.44	6.31
1%	0.55	0.61	0.71	1.02	1.27	1.88	2.86	3.84	4.99	5.90	6.92
0.50%	0.61	0.67	0.76	1.08	1.33	1.98	3.06	4.13	5.37	6.33	7.51
0.20%	0.68	0.74	0.81	1.15	1.40	2.10	3.32	4.49	5.84	6.89	8.27
0.10%	0.74	0.79	0.86	1.21	1.46	2.19	3.51	4.75	6.19	7.29	8.84
0.01%	0.93	0.96	0.99	1.38	1.62	2.47	4.11	5.60	7.31	8.59	10.67

Table A-18: Maryknoll Precipitation Station (6053) precipitation duration frequency analysis results (inches) based on data recorded from year 1968 to 2011

	Duration in hours										
Frequency	0.25 Hr	0.5 Hr	1 Hr	2 Hr	3 Hr	6 Hr	12 Hr	24 Hr	48 Hr	72 Hr	96 Hr
50%	0.20	0.28	0.39	0.63	0.84	1.26	1.66	2.08	2.70	3.10	3.35
20%	0.30	0.37	0.50	0.78	1.06	1.57	2.17	2.80	3.76	4.32	4.74
10%	0.36	0.43	0.56	0.87	1.19	1.75	2.45	3.20	4.38	5.01	5.58
4%	0.44	0.49	0.63	0.96	1.34	1.95	2.77	3.67	5.08	5.80	6.57
2%	0.50	0.54	0.68	1.02	1.44	2.08	2.99	3.98	5.56	6.33	7.26
1%	0.56	0.58	0.72	1.08	1.54	2.20	3.19	4.27	6.00	6.83	7.92
0.50%	0.61	0.62	0.77	1.14	1.64	2.31	3.37	4.55	6.43	7.30	8.55
0.20%	0.69	0.68	0.82	1.20	1.76	2.46	3.61	4.89	6.96	7.88	9.36
0.10%	0.74	0.71	0.86	1.25	1.85	2.56	3.77	5.15	7.35	8.31	9.96
0.01%	0.92	0.83	0.98	1.40	2.13	2.87	4.29	5.93	8.57	9.63	11.86

Table A-19: Mt. Hamilton Precipitation Station (6067) precipitation duration frequency analysis results (inches) based on data recorded from year 1966 to 2011

	Duration in hours										
Frequency	0.25 Hr	0.5 Hr	1 Hr	2 Hr	3 Hr	6 Hr	12 Hr	24 Hr	48 Hr	72 Hr	96 Hr
50%	0.24	0.35	0.51	0.79	1.03	1.59	2.20	2.84	3.66	4.15	4.49
20%	0.35	0.46	0.63	0.97	1.27	1.98	2.82	3.70	4.76	5.56	6.15
10%	0.42	0.53	0.69	1.08	1.41	2.20	3.18	4.17	5.35	6.37	7.17
4%	0.51	0.61	0.77	1.21	1.58	2.46	3.57	4.69	6.00	7.29	8.38
2%	0.57	0.66	0.82	1.29	1.70	2.63	3.84	5.03	6.42	7.91	9.22
1%	0.64	0.72	0.87	1.38	1.81	2.79	4.09	5.35	6.80	8.49	10.04
0.50%	0.70	0.77	0.92	1.46	1.91	2.95	4.32	5.64	7.16	9.04	10.82
0.20%	0.79	0.84	0.98	1.56	2.05	3.14	4.61	6.01	7.59	9.73	11.83
0.10%	0.85	0.90	1.02	1.63	2.15	3.28	4.82	6.27	7.90	10.23	12.57
0.01%	1.06	1.06	1.16	1.87	2.46	3.72	5.47	7.06	8.83	11.78	14.96

Table A-20: Mt. Umunhum Precipitation Station (6069) precipitation duration frequency analysis results (inches) based on data recorded from year 1969 to 2011

	Duration in hours										
Frequency	0.25 Hr	0.5 Hr	1 Hr	2 Hr	3 Hr	6 Hr	12 Hr	24 Hr	48 Hr	72 Hr	96 Hr
50%	0.31	0.47	0.76	1.23	1.58	2.42	3.42	4.64	6.08	7.02	7.81
20%	0.39	0.58	0.95	1.55	2.03	3.15	4.52	6.22	8.31	9.61	10.61
10%	0.42	0.64	1.04	1.72	2.29	3.58	5.16	7.13	9.59	11.11	12.24
4%	0.46	0.69	1.14	1.89	2.57	4.09	5.90	8.18	11.04	12.81	14.11
2%	0.49	0.73	1.20	2.01	2.77	4.45	6.40	8.90	12.02	13.98	15.39
1%	0.51	0.76	1.26	2.11	2.95	4.78	6.87	9.57	12.94	15.07	16.60
0.50%	0.53	0.78	1.31	2.21	3.12	5.10	7.32	10.22	13.81	16.10	17.74
0.20%	0.55	0.82	1.37	2.32	3.33	5.51	7.88	11.02	14.91	17.40	19.19
0.10%	0.57	0.84	1.41	2.40	3.49	5.81	8.29	11.61	15.70	18.34	20.24
0.01%	0.62	0.90	1.52	2.64	3.96	6.76	9.58	13.46	18.18	21.29	23.54

Table A-21: Peabody Precipitation Station (6075) precipitation duration frequency analysis results (inches) based on data recorded from year 1972 to 2008

	Duration in hours										
Frequency	0.25 Hr	0.5 Hr	1 Hr	2 Hr	3 Hr	6 Hr	12 Hr	24 Hr	48 Hr	72 Hr	96 Hr
50%	0.23	0.30	0.41	0.64	0.82	1.19	1.55	1.97	2.54	2.82	3.05
20%	0.33	0.43	0.53	0.83	1.04	1.50	2.06	2.62	3.43	3.85	4.19
10%	0.39	0.51	0.61	0.93	1.17	1.67	2.36	3.00	3.93	4.44	4.88
4%	0.45	0.61	0.70	1.06	1.31	1.87	2.70	3.43	4.50	5.10	5.68
2%	0.50	0.68	0.76	1.14	1.40	1.99	2.93	3.73	4.89	5.55	6.24
1%	0.55	0.74	0.82	1.22	1.49	2.11	3.15	4.01	5.25	5.97	6.77
0.50%	0.59	0.81	0.88	1.30	1.57	2.22	3.36	4.27	5.59	6.36	7.28
0.20%	0.65	0.89	0.96	1.40	1.67	2.36	3.62	4.61	6.01	6.86	7.93
0.10%	0.69	0.96	1.02	1.47	1.75	2.45	3.81	4.85	6.32	7.22	8.41
0.01%	0.83	1.16	1.20	1.70	1.98	2.75	4.40	5.61	7.28	8.34	9.93

Table A-22: Valley Christian Precipitation Station (6077) precipitation duration frequency analysis results (inches) based on data recorded from year 1967 to 2011

	Duration in hours										
Frequency	0.25 Hr	0.5 Hr	1 Hr	2 Hr	3 Hr	6 Hr	12 Hr	24 Hr	48 Hr	72 Hr	96 Hr
50%	0.30	0.44	0.74	1.23	1.63	2.47	3.44	4.81	6.51	7.39	8.04
20%	0.38	0.54	0.89	1.48	2.01	3.22	4.64	6.35	8.50	9.82	10.94
10%	0.42	0.60	0.97	1.61	2.22	3.67	5.38	7.23	9.60	11.21	12.73
4%	0.47	0.66	1.06	1.75	2.46	4.21	6.27	8.24	10.82	12.80	14.87
2%	0.50	0.70	1.12	1.85	2.62	4.58	6.90	8.92	11.63	13.88	16.38
1%	0.53	0.74	1.17	1.93	2.77	4.94	7.51	9.56	12.38	14.90	17.82
0.50%	0.56	0.77	1.22	2.01	2.91	5.29	8.09	10.17	13.08	15.86	19.23
0.20%	0.60	0.82	1.28	2.11	3.09	5.73	8.85	10.93	13.94	17.06	21.03
0.10%	0.63	0.85	1.32	2.18	3.21	6.05	9.41	11.48	14.55	17.94	22.36
0.01%	0.71	0.94	1.45	2.38	3.60	7.10	11.22	13.20	16.44	20.67	26.65

Table A-23: Rinconada WTP Precipitation Station (6079) precipitation duration frequency analysis results (inches) based on data recorded from year 1976 to 2008

	Duration in hours										
Frequency	0.25 Hr	0.5 Hr	1 Hr	2 Hr	3 Hr	6 Hr	12 Hr	24 Hr	48 Hr	72 Hr	96 Hr
50%	0.22	0.32	0.46	0.74	0.97	1.42	1.94	2.48	3.15	3.53	3.87
20%	0.28	0.41	0.59	0.91	1.20	1.88	2.69	3.46	4.46	5.08	5.62
10%	0.31	0.46	0.67	1.00	1.33	2.16	3.13	4.02	5.20	5.98	6.67
4%	0.35	0.53	0.76	1.10	1.47	2.48	3.65	4.65	6.04	7.02	7.90
2%	0.38	0.57	0.82	1.16	1.56	2.71	4.00	5.08	6.60	7.73	8.76
1%	0.40	0.61	0.87	1.22	1.65	2.92	4.34	5.48	7.13	8.40	9.58
0.50%	0.42	0.64	0.93	1.28	1.73	3.12	4.67	5.86	7.62	9.04	10.37
0.20%	0.45	0.69	1.00	1.35	1.83	3.38	5.08	6.33	8.25	9.85	11.37
0.10%	0.47	0.73	1.05	1.39	1.90	3.56	5.38	6.67	8.69	10.44	12.11
0.01%	0.53	0.84	1.20	1.54	2.11	4.16	6.33	7.73	10.09	12.28	14.46

Table A-24: Shanti Ashrama Precipitation Station (6098) precipitation duration frequency analysis results (inches) based on data recorded from year 1965 to 2011

	Duration in hours										
Frequency	0.25 Hr	0.5 Hr	1 Hr	2 Hr	3 Hr	6 Hr	12 Hr	24 Hr	48 Hr	72 Hr	96 Hr
50%	0.22	0.28	0.43	0.69	0.88	1.37	1.81	2.33	3.00	3.31	3.63
20%	0.29	0.36	0.54	0.84	1.09	1.75	2.43	3.09	4.01	4.55	5.06
10%	0.33	0.41	0.60	0.92	1.20	1.97	2.79	3.52	4.61	5.30	5.96
4%	0.38	0.47	0.67	1.01	1.33	2.22	3.20	4.02	5.29	6.18	7.03
2%	0.41	0.51	0.72	1.08	1.42	2.39	3.48	4.37	5.76	6.80	7.80
1%	0.44	0.55	0.77	1.14	1.50	2.54	3.75	4.69	6.21	7.40	8.53
0.50%	0.47	0.59	0.82	1.19	1.57	2.69	4.01	4.99	6.63	7.97	9.25
0.20%	0.51	0.63	0.87	1.26	1.66	2.87	4.33	5.37	7.17	8.70	10.17
0.10%	0.54	0.67	0.91	1.31	1.73	3.00	4.57	5.65	7.56	9.23	10.86
0.01%	0.63	0.78	1.05	1.46	1.93	3.41	5.31	6.52	8.80	10.95	13.08

Table A-25: Penitencia WTP Precipitation Station (6099) precipitation duration frequency analysis results (inches) based on data recorded from year 1967 to 2011

	Duration in hours										
Frequency	0.25 Hr	0.5 Hr	1 Hr	2 Hr	3 Hr	6 Hr	12 Hr	24 Hr	48 Hr	72 Hr	96 Hr
50%	0.24	0.30	0.41	0.59	0.74	0.98	1.25	1.47	1.85	2.14	2.37
20%	0.32	0.39	0.52	0.74	0.92	1.24	1.62	1.90	2.47	2.85	3.16
10%	0.36	0.44	0.58	0.82	1.02	1.39	1.83	2.13	2.82	3.26	3.62
4%	0.42	0.50	0.66	0.91	1.12	1.55	2.07	2.38	3.21	3.73	4.13
2%	0.47	0.54	0.71	0.97	1.19	1.65	2.24	2.55	3.48	4.04	4.48
1%	0.51	0.58	0.76	1.02	1.25	1.75	2.39	2.70	3.74	4.34	4.81
0.50%	0.55	0.62	0.81	1.08	1.31	1.84	2.53	2.84	3.97	4.62	5.12
0.20%	0.60	0.67	0.87	1.14	1.38	1.96	2.71	3.02	4.27	4.97	5.50
0.10%	0.64	0.70	0.91	1.19	1.43	2.04	2.84	3.14	4.49	5.22	5.78
0.01%	0.77	0.82	1.06	1.34	1.59	2.29	3.24	3.52	5.16	6.02	6.65

Table A-26: Stevens Creek Precipitation Station (6100) precipitation duration frequency analysis results (inches) based on data recorded from year 1975 to 2011

	Duration in hours										
Frequency	0.25 Hr	0.5 Hr	1 Hr	2 Hr	3 Hr	6 Hr	12 Hr	24 Hr	48 Hr	72 Hr	96 Hr
50%	0.27	0.38	0.57	0.99	1.27	1.92	2.68	3.46	4.47	5.12	5.64
20%	0.33	0.48	0.75	1.22	1.61	2.53	3.64	4.64	5.96	7.03	7.72
10%	0.37	0.53	0.87	1.35	1.80	2.90	4.20	5.29	6.76	8.07	8.88
4%	0.41	0.59	1.02	1.48	2.01	3.32	4.85	6.02	7.62	9.23	10.17
2%	0.44	0.63	1.13	1.57	2.15	3.61	5.29	6.50	8.18	9.99	11.03
1%	0.46	0.66	1.23	1.65	2.29	3.88	5.71	6.95	8.69	10.70	11.83
0.50%	0.48	0.70	1.33	1.72	2.41	4.14	6.11	7.37	9.16	11.35	12.58
0.20%	0.51	0.74	1.46	1.81	2.57	4.47	6.61	7.90	9.74	12.16	13.51
0.10%	0.53	0.77	1.56	1.88	2.69	4.71	6.98	8.27	10.15	12.74	14.18
0.01%	0.60	0.86	1.88	2.07	3.04	5.46	8.13	9.43	11.37	14.51	16.23

Table A-27: U.T.C. Precipitation Station (6102) precipitation duration frequency analysis results (inches) based on data recorded from year 1966 to 2011

	Duration in hours										
Frequency	0.25 Hr	0.5 Hr	1 Hr	2 Hr	3 Hr	6 Hr	12 Hr	24 Hr	48 Hr	72 Hr	96 Hr
50%	0.25	0.33	0.43	0.63	0.79	1.07	1.40	1.73	2.29	2.64	2.85
20%	0.35	0.45	0.58	0.83	1.04	1.50	2.03	2.44	3.22	3.66	4.01
10%	0.41	0.53	0.68	0.95	1.19	1.76	2.43	2.86	3.76	4.24	4.68
4%	0.48	0.61	0.79	1.09	1.37	2.07	2.91	3.35	4.37	4.88	5.45
2%	0.52	0.67	0.88	1.18	1.49	2.30	3.26	3.69	4.79	5.31	5.97
1%	0.56	0.72	0.95	1.27	1.60	2.51	3.60	4.01	5.18	5.70	6.46
0.50%	0.60	0.77	1.03	1.36	1.71	2.71	3.92	4.32	5.55	6.08	6.92
0.20%	0.65	0.83	1.13	1.47	1.85	2.98	4.35	4.72	6.01	6.54	7.50
0.10%	0.69	0.88	1.20	1.55	1.95	3.17	4.67	5.01	6.35	6.88	7.92
0.01%	0.79	1.03	1.44	1.80	2.28	3.80	5.69	5.93	7.40	7.91	9.25

Table A-28: Uvas Reservoir Precipitation Station (6104) precipitation duration frequency analysis results (inches) based on data recorded from year 1975 to 2011

	Duration in hours										
Frequency	0.25 Hr	0.5 Hr	1 Hr	2 Hr	3 Hr	6 Hr	12 Hr	24 Hr	48 Hr	72 Hr	96 Hr
50%	0.28	0.43	0.64	1.02	1.35	2.03	2.79	3.50	4.47	5.05	5.41
20%	0.36	0.53	0.82	1.32	1.76	2.70	3.79	4.70	6.16	6.97	7.49
10%	0.41	0.58	0.94	1.51	2.01	3.12	4.38	5.40	7.15	8.14	8.79
4%	0.45	0.63	1.09	1.74	2.32	3.61	5.07	6.20	8.30	9.51	10.32
2%	0.49	0.67	1.19	1.91	2.53	3.96	5.54	6.75	9.09	10.48	11.41
1%	0.52	0.71	1.29	2.07	2.74	4.30	5.99	7.26	9.84	11.40	12.45
0.50%	0.54	0.74	1.38	2.22	2.94	4.62	6.42	7.75	10.56	12.28	13.46
0.20%	0.58	0.78	1.51	2.43	3.20	5.04	6.96	8.37	11.46	13.41	14.76
0.10%	0.60	0.80	1.60	2.58	3.40	5.35	7.35	8.82	12.12	14.25	15.72
0.01%	0.68	0.89	1.90	3.07	4.02	6.35	8.61	10.23	14.21	16.91	18.82

Table A-29: West Yard Precipitation Station (6108) precipitation duration frequency analysis results (inches) based on data recorded from year 1971 to 2011

	Duration in hours										
Frequency	0.25 Hr	0.5 Hr	1 Hr	2 Hr	3 Hr	6 Hr	12 Hr	24 Hr	48 Hr	72 Hr	96 Hr
50%	0.20	0.28	0.40	0.62	0.79	1.14	1.49	1.83	2.36	2.75	3.01
20%	0.28	0.37	0.53	0.79	0.99	1.45	2.01	2.61	3.39	3.90	4.33
10%	0.33	0.43	0.60	0.89	1.10	1.61	2.31	3.08	3.98	4.55	5.09
4%	0.38	0.50	0.70	1.00	1.22	1.79	2.66	3.62	4.66	5.28	5.96
2%	0.42	0.54	0.76	1.07	1.30	1.91	2.89	3.99	5.12	5.78	6.56
1%	0.46	0.59	0.82	1.14	1.37	2.02	3.11	4.35	5.56	6.24	7.12
0.50%	0.49	0.63	0.88	1.20	1.43	2.12	3.31	4.69	5.97	6.67	7.65
0.20%	0.53	0.68	0.95	1.28	1.51	2.24	3.57	5.13	6.49	7.21	8.32
0.10%	0.56	0.73	1.01	1.34	1.57	2.32	3.76	5.45	6.87	7.60	8.81
0.01%	0.66	0.85	1.18	1.51	1.74	2.58	4.35	6.46	8.05	8.81	10.34

Table A-30: Mountain View Precipitation Station (6121) precipitation duration frequency analysis results (inches) based on data recorded from year 1976 to 2011

	Duration in hours										
Frequency	0.25 Hr	0.5 Hr	1 Hr	2 Hr	3 Hr	6 Hr	12 Hr	24 Hr	48 Hr	72 Hr	96 Hr
50%	0.22	0.28	0.35	0.55	0.69	0.96	1.27	1.56	1.98	2.33	2.50
20%	0.30	0.37	0.48	0.68	0.84	1.20	1.68	2.12	2.69	3.13	3.41
10%	0.35	0.42	0.56	0.75	0.92	1.34	1.92	2.45	3.11	3.60	3.97
4%	0.41	0.49	0.67	0.84	1.01	1.50	2.19	2.84	3.61	4.15	4.62
2%	0.45	0.53	0.75	0.91	1.07	1.60	2.37	3.12	3.96	4.53	5.07
1%	0.48	0.57	0.83	0.96	1.12	1.69	2.55	3.38	4.28	4.88	5.51
0.50%	0.52	0.61	0.91	1.02	1.17	1.78	2.71	3.63	4.60	5.22	5.93
0.20%	0.56	0.66	1.02	1.09	1.23	1.90	2.92	3.95	5.00	5.65	6.46
0.10%	0.59	0.70	1.09	1.14	1.28	1.98	3.07	4.18	5.29	5.96	6.86
0.01%	0.69	0.82	1.36	1.31	1.41	2.22	3.55	4.93	6.23	6.95	8.12

Table A-31: Guadalupe Watershed Precipitation Station (6123) precipitation duration frequency analysis results (inches) based on data recorded from year 1976 to 2011

	Duration in hours										
Frequency	0.25 Hr	0.5 Hr	1 Hr	2 Hr	3 Hr	6 Hr	12 Hr	24 Hr	48 Hr	72 Hr	96 Hr
50%	0.33	0.44	0.71	1.19	1.58	2.47	3.46	4.44	5.64	6.57	7.17
20%	0.41	0.59	0.96	1.62	2.16	3.38	4.64	6.06	7.99	9.33	10.18
10%	0.46	0.67	1.11	1.88	2.53	3.94	5.32	7.02	9.38	10.94	11.97
4%	0.51	0.78	1.29	2.21	2.98	4.63	6.10	8.14	11.00	12.79	14.07
2%	0.54	0.86	1.41	2.44	3.30	5.11	6.63	8.91	12.12	14.06	15.52
1%	0.57	0.93	1.53	2.67	3.62	5.58	7.13	9.63	13.18	15.26	16.90
0.50%	0.60	1.01	1.65	2.88	3.92	6.04	7.60	10.33	14.19	16.39	18.22
0.20%	0.64	1.10	1.80	3.17	4.32	6.63	8.20	11.21	15.48	17.83	19.90
0.10%	0.66	1.17	1.91	3.38	4.62	7.07	8.63	11.85	16.42	18.87	21.13
0.01%	0.74	1.39	2.26	4.06	5.58	8.48	10.00	13.89	19.41	22.15	25.05

Table A-32: Vasona Pump Precipitation Station (6125) precipitation duration frequency analysis results (inches) based on data recorded from year 1977 to 2011

	Duration in hours										
Frequency	0.25 Hr	0.5 Hr	1 Hr	2 Hr	3 Hr	6 Hr	12 Hr	24 Hr	48 Hr	72 Hr	96 Hr
50%	0.20	0.30	0.46	0.72	0.94	1.43	1.89	2.42	3.17	3.57	3.95
20%	0.28	0.40	0.59	0.91	1.17	1.84	2.49	3.26	4.25	4.87	5.46
10%	0.33	0.46	0.65	1.01	1.30	2.06	2.83	3.74	4.82	5.59	6.33
4%	0.39	0.53	0.73	1.12	1.43	2.31	3.22	4.27	5.44	6.38	7.33
2%	0.43	0.58	0.78	1.20	1.52	2.47	3.49	4.62	5.85	6.91	8.01
1%	0.46	0.63	0.83	1.27	1.61	2.62	3.74	4.95	6.22	7.40	8.64
0.50%	0.50	0.67	0.88	1.33	1.68	2.76	3.98	5.27	6.56	7.85	9.25
0.20%	0.55	0.73	0.93	1.41	1.78	2.93	4.27	5.65	6.97	8.41	10.01
0.10%	0.58	0.78	0.98	1.47	1.84	3.05	4.49	5.93	7.26	8.81	10.56
0.01%	0.69	0.92	1.10	1.65	2.04	3.43	5.17	6.79	8.14	10.04	12.29

Table A-33: Cow Ridge Precipitation Station (6127) precipitation duration frequency analysis results (inches) based on data recorded from year 1978 to 2011

	Duration in hours										
Frequency	0.25 Hr	0.5 Hr	1 Hr	2 Hr	3 Hr	6 Hr	12 Hr	24 Hr	48 Hr	72 Hr	96 Hr
50%	0.27	0.39	0.53	0.82	1.02	1.48	2.00	2.55	3.33	3.81	4.20
20%	0.36	0.51	0.70	1.06	1.30	1.85	2.50	3.20	4.29	4.92	5.49
10%	0.42	0.57	0.80	1.21	1.47	2.06	2.77	3.55	4.83	5.54	6.25
4%	0.49	0.65	0.94	1.39	1.67	2.29	3.07	3.92	5.42	6.22	7.13
2%	0.53	0.71	1.03	1.53	1.80	2.45	3.26	4.16	5.81	6.68	7.74
1%	0.58	0.76	1.13	1.65	1.93	2.60	3.44	4.37	6.17	7.11	8.31
0.50%	0.62	0.81	1.22	1.78	2.06	2.75	3.61	4.57	6.51	7.51	8.86
0.20%	0.67	0.87	1.34	1.94	2.21	2.93	3.82	4.82	6.94	8.00	9.56
0.10%	0.71	0.91	1.42	2.06	2.33	3.05	3.97	4.99	7.24	8.36	10.07
0.01%	0.84	1.05	1.72	2.44	2.69	3.46	4.42	5.50	8.16	9.45	11.69

Table A-34: Calero Precipitation Station (6128) precipitation duration frequency analysis results (inches) based on data recorded from year 1979 to 2011

	Duration in hours										
Frequency	0.25 Hr	0.5 Hr	1 Hr	2 Hr	3 Hr	6 Hr	12 Hr	24 Hr	48 Hr	72 Hr	96 Hr
50%	0.23	0.32	0.51	0.86	1.15	1.74	2.32	2.90	3.76	4.15	4.55
20%	0.30	0.43	0.66	1.12	1.47	2.22	2.91	3.81	5.03	5.70	6.32
10%	0.35	0.50	0.76	1.27	1.65	2.47	3.21	4.31	5.74	6.61	7.37
4%	0.40	0.59	0.87	1.44	1.84	2.74	3.52	4.87	6.52	7.65	8.61
2%	0.44	0.65	0.95	1.55	1.97	2.92	3.71	5.24	7.04	8.37	9.48
1%	0.48	0.71	1.02	1.66	2.09	3.08	3.89	5.58	7.52	9.04	10.30
0.50%	0.52	0.77	1.09	1.77	2.19	3.23	4.04	5.90	7.96	9.68	11.09
0.20%	0.56	0.85	1.19	1.90	2.33	3.41	4.23	6.30	8.52	10.50	12.09
0.10%	0.59	0.90	1.25	2.00	2.43	3.53	4.36	6.59	8.91	11.09	12.83
0.01%	0.70	1.09	1.47	2.30	2.72	3.91	4.73	7.46	10.13	12.95	15.19

Table A-35: Palo Alto Precipitation Station (6129) precipitation duration frequency analysis results (inches) based on data recorded from year 1980 to 2011

	Duration in hours										
Frequency	0.25 Hr	0.5 Hr	1 Hr	2 Hr	3 Hr	6 Hr	12 Hr	24 Hr	48 Hr	72 Hr	96 Hr
50%	0.22	0.28	0.37	0.55	0.68	0.97	1.29	1.51	1.88	2.17	2.36
20%	0.31	0.37	0.51	0.73	0.89	1.24	1.70	2.02	2.45	2.74	3.06
10%	0.36	0.43	0.60	0.85	1.03	1.39	1.93	2.33	2.79	3.06	3.46
4%	0.42	0.50	0.71	0.99	1.19	1.56	2.19	2.69	3.17	3.40	3.91
2%	0.46	0.54	0.78	1.10	1.30	1.68	2.36	2.94	3.43	3.63	4.22
1%	0.50	0.59	0.86	1.20	1.41	1.79	2.52	3.17	3.68	3.84	4.51
0.50%	0.53	0.63	0.94	1.30	1.52	1.89	2.67	3.40	3.91	4.03	4.78
0.20%	0.58	0.68	1.03	1.42	1.65	2.01	2.86	3.70	4.20	4.27	5.12
0.10%	0.61	0.72	1.11	1.52	1.75	2.10	2.99	3.91	4.41	4.44	5.37
0.01%	0.71	0.84	1.35	1.83	2.08	2.38	3.40	4.60	5.08	4.96	6.14

Table A-36: City of San Jose Precipitation Station (6131) precipitation duration frequency analysis results (inches) based on data recorded from year 1993 to 2011

	Duration in hours										
Frequency	0.25 Hr	0.5 Hr	1 Hr	2 Hr	3 Hr	6 Hr	12 Hr	24 Hr	48 Hr	72 Hr	96 Hr
50%	0.23	0.31	0.43	0.63	0.76	0.97	1.24	1.51	2.00	2.26	2.46
20%	0.32	0.45	0.58	0.78	0.93	1.20	1.59	2.05	2.68	2.90	3.13
10%	0.38	0.55	0.68	0.87	1.01	1.33	1.78	2.36	3.06	3.24	3.48
4%	0.45	0.66	0.80	0.96	1.11	1.47	1.98	2.72	3.48	3.61	3.87
2%	0.50	0.75	0.89	1.03	1.16	1.57	2.12	2.96	3.76	3.85	4.12
1%	0.54	0.83	0.97	1.09	1.22	1.66	2.25	3.19	4.02	4.07	4.34
0.50%	0.59	0.92	1.06	1.14	1.27	1.74	2.37	3.41	4.27	4.27	4.55
0.20%	0.65	1.03	1.16	1.21	1.32	1.84	2.51	3.68	4.58	4.51	4.81
0.10%	0.70	1.11	1.24	1.26	1.36	1.91	2.61	3.88	4.80	4.68	4.99
0.01%	0.85	1.38	1.50	1.42	1.48	2.13	2.93	4.50	5.48	5.20	5.53

Table A-37: Evergreen Precipitation Station (6132) precipitation duration frequency analysis results (inches) based on data recorded from year 1988 to 2011

	Duration in hours										
Frequency	0.25 Hr	0.5 Hr	1 Hr	2 Hr	3 Hr	6 Hr	12 Hr	24 Hr	48 Hr	72 Hr	96 Hr
50%	0.23	0.29	0.38	0.56	0.70	0.94	1.11	1.37	1.81	2.10	2.29
20%	0.32	0.39	0.48	0.67	0.86	1.16	1.43	1.79	2.45	2.91	3.23
10%	0.36	0.45	0.55	0.74	0.96	1.28	1.61	2.01	2.80	3.37	3.79
4%	0.42	0.52	0.64	0.81	1.06	1.41	1.82	2.26	3.19	3.90	4.42
2%	0.46	0.57	0.70	0.86	1.13	1.50	1.96	2.43	3.45	4.25	4.86
1%	0.49	0.62	0.76	0.91	1.20	1.58	2.10	2.58	3.69	4.58	5.27
0.50%	0.53	0.66	0.82	0.95	1.26	1.65	2.23	2.72	3.92	4.90	5.67
0.20%	0.57	0.72	0.90	1.01	1.34	1.75	2.39	2.89	4.20	5.29	6.16
0.10%	0.60	0.77	0.96	1.05	1.40	1.81	2.51	3.01	4.40	5.57	6.53
0.01%	0.70	0.91	1.15	1.17	1.57	2.02	2.88	3.39	5.01	6.45	7.67

Table A-38: Church Avenue Precipitation Station (6134) precipitation duration frequency analysis results (inches) based on data recorded from year 1993 to 2011

	Duration in hours										
Frequency	0.25 Hr	0.5 Hr	1 Hr	2 Hr	3 Hr	6 Hr	12 Hr	24 Hr	48 Hr	72 Hr	96 Hr
50%	0.23	0.35	0.47	0.75	0.95	1.27	1.73	2.34	3.12	3.52	3.67
20%	0.29	0.42	0.60	0.96	1.23	1.75	2.37	3.15	4.23	4.58	4.71
10%	0.32	0.46	0.68	1.09	1.39	2.04	2.74	3.62	4.88	5.18	5.31
4%	0.36	0.50	0.78	1.24	1.59	2.37	3.18	4.15	5.62	5.85	5.98
2%	0.38	0.53	0.86	1.34	1.72	2.61	3.48	4.51	6.12	6.29	6.44
1%	0.41	0.56	0.93	1.44	1.85	2.83	3.77	4.85	6.60	6.71	6.87
0.50%	0.43	0.59	1.00	1.53	1.97	3.05	4.04	5.17	7.05	7.09	7.27
0.20%	0.46	0.62	1.10	1.65	2.13	3.32	4.39	5.57	7.62	7.57	7.78
0.10%	0.48	0.64	1.17	1.73	2.24	3.52	4.64	5.86	8.04	7.92	8.15
0.01%	0.55	0.72	1.41	2.01	2.60	4.16	5.45	6.77	9.34*	8.99	9.29

*question result (it should be less than 8.99, the problem is due to high standard deviation on 48 h)

Table A-39: Uvas Canyon Precipitation Station (6135) precipitation duration frequency analysis results (inches) based on data recorded from year 1993 to 2011

	Duration in hours										
Frequency	0.25 Hr	0.5 Hr	1 Hr	2 Hr	3 Hr	6 Hr	12 Hr	24 Hr	48 Hr	72 Hr	96 Hr
50%	0.44	0.63	0.94	1.47	1.85	2.60	3.67	5.06	6.56	7.37	8.16
20%	0.51	0.76	1.19	1.85	2.37	3.51	5.08	6.90	8.76	9.74	10.74
10%	0.56	0.84	1.32	2.06	2.64	4.05	5.91	7.92	9.87	10.94	12.07
4%	0.60	0.93	1.46	2.28	2.93	4.67	6.87	9.05	11.03	12.19	13.47
2%	0.62	0.99	1.56	2.42	3.12	5.10	7.52	9.80	11.76	12.99	14.37
1%	0.65	1.05	1.65	2.56	3.29	5.51	8.15	10.49	12.41	13.70	15.17
0.50%	0.67	1.10	1.72	2.68	3.44	5.90	8.74	11.14	13.00	14.34	15.89
0.20%	0.70	1.17	1.82	2.83	3.63	6.39	9.49	11.95	13.70	15.10	16.77
0.10%	0.72	1.22	1.89	2.93	3.76	6.75	10.04	12.52	14.19	15.63	17.37
0.01%	0.77	1.37	2.10	3.25	4.16	7.89	11.77	14.29	15.59	17.17	19.16

Table A-40: Morgan Hill Precipitation Station (6136) precipitation duration frequency analysis results (inches) based on data recorded from year 1998 to 2011

	Duration in hours										
Frequency	0.25 Hr	0.5 Hr	1 Hr	2 Hr	3 Hr	6 Hr	12 Hr	24 Hr	48 Hr	72 Hr	96 Hr
50%	0.24	0.33	0.48	0.74	0.96	1.35	1.66	2.04	2.79	3.17	3.42
20%	0.33	0.42	0.64	1.05	1.36	1.94	2.39	2.95	4.02	4.47	4.70
10%	0.38	0.47	0.74	1.25	1.60	2.30	2.84	3.50	4.74	5.22	5.46
4%	0.45	0.53	0.87	1.48	1.90	2.74	3.39	4.15	5.57	6.09	6.35
2%	0.50	0.57	0.95	1.65	2.10	3.05	3.78	4.60	6.14	6.68	6.96
1%	0.54	0.60	1.04	1.82	2.30	3.34	4.16	5.03	6.67	7.24	7.55
0.50%	0.58	0.64	1.12	1.98	2.49	3.63	4.52	5.44	7.19	7.77	8.11
0.20%	0.64	0.68	1.23	2.19	2.73	4.00	5.00	5.96	7.83	8.44	8.82
0.10%	0.68	0.70	1.30	2.34	2.91	4.27	5.35	6.35	8.30	8.93	9.35
0.01%	0.81	0.79	1.56	2.85	3.49	5.15	6.48	7.58	9.79	10.46	11.01

Appendix B: Predicted Rainfall Intensity-Duration-Frequency relationship on SCVWD Precipitation Stations

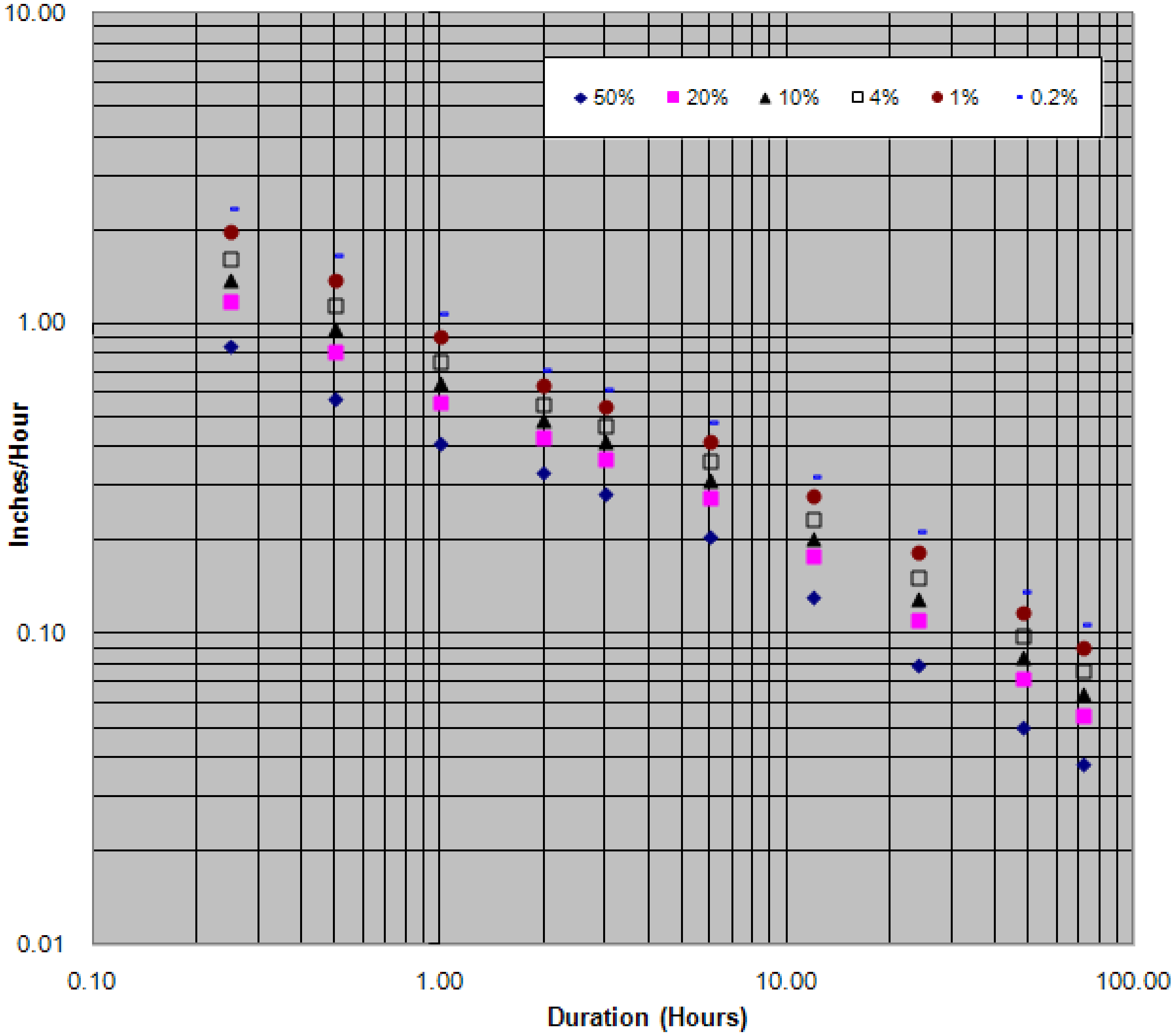

Figure B-1: Predicted Rainfall Intensity-Duration-Frequency relationship for Alamitos Precipitation Station (6001) based on data recorded from 1977 to 2011

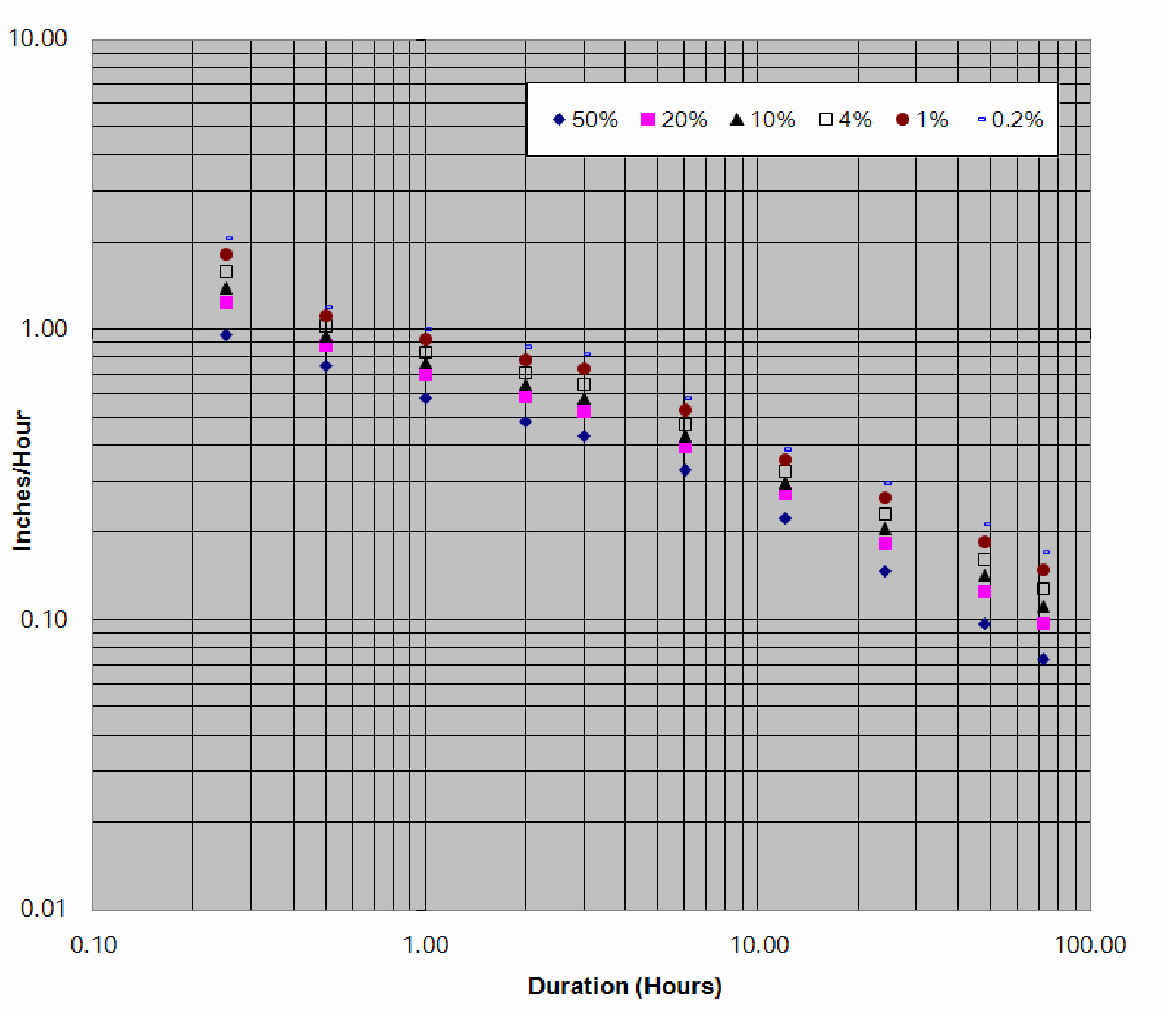

Figure B-2: Predicted Rainfall Intensity-Duration-Frequency relationship for Almaden Watershed Precipitation Station (6004) based on the data recorded from 1972 to 2011

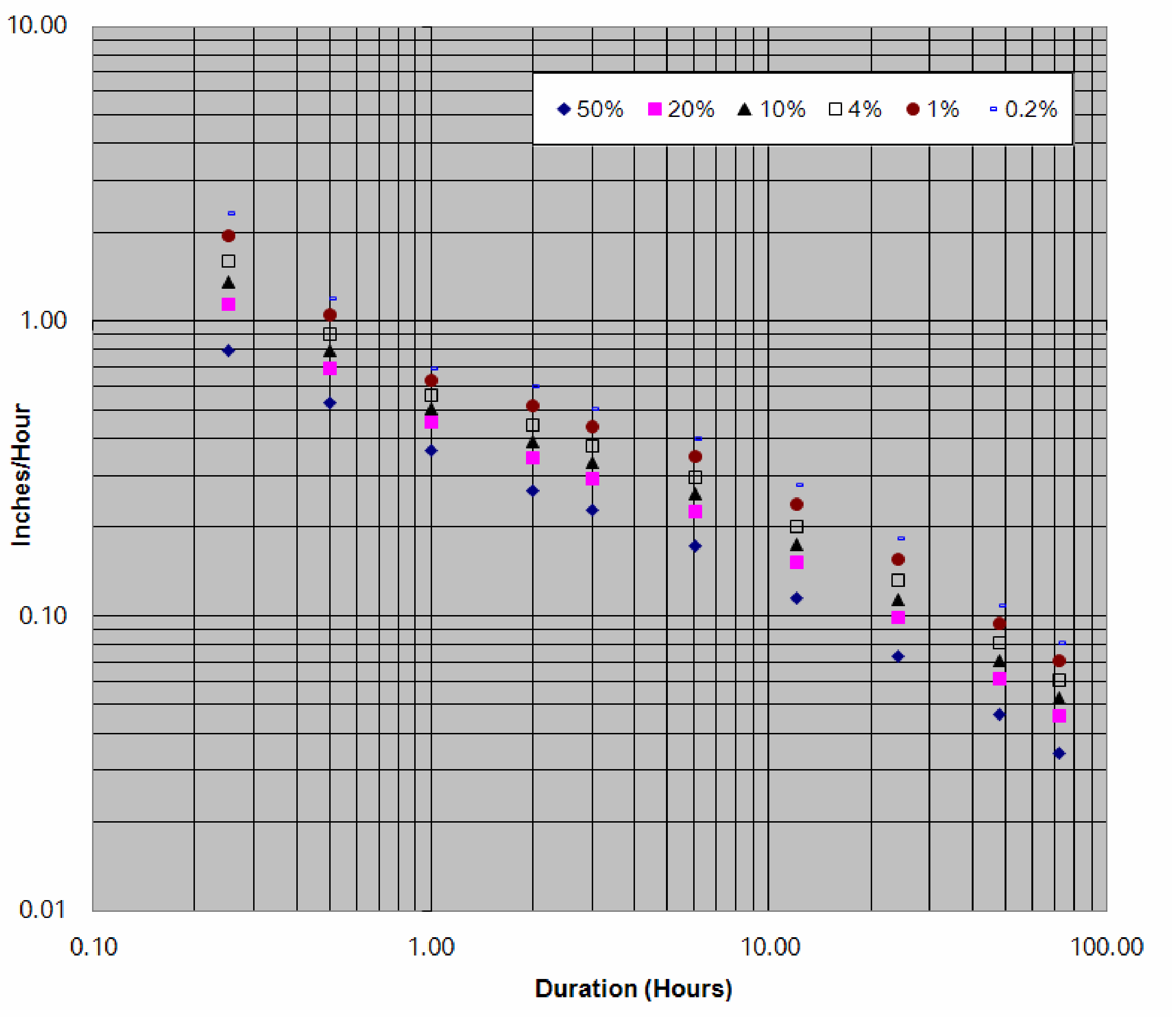

Figure B-3: Predicted Rainfall Intensity-Duration-Frequency relationship for Biel Ranch Precipitation Station (6008) based on the data recorded from 1965 to 2011

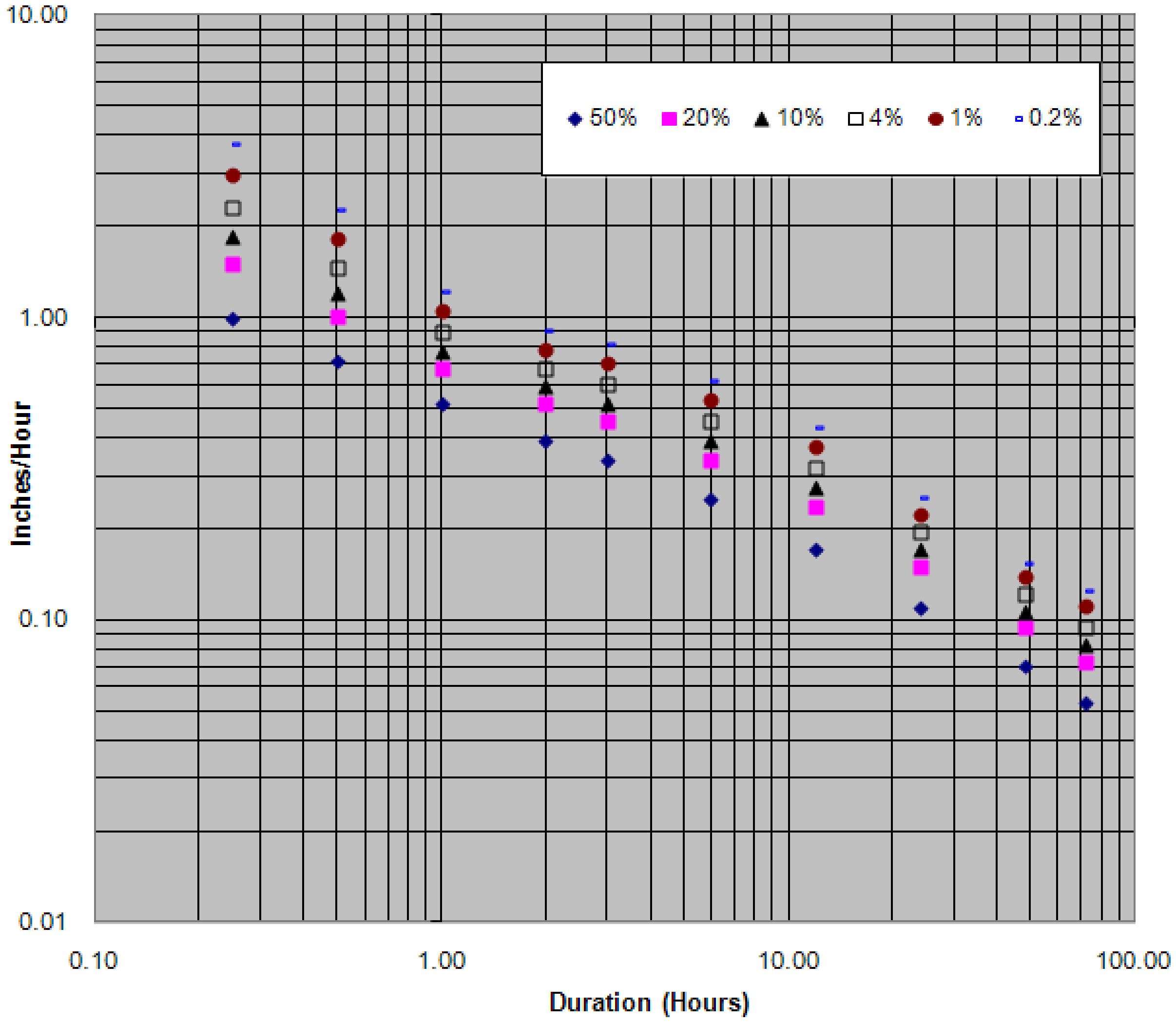

Figure B-4: Predicted Rainfall Intensity-Duration-Frequency relationship for Castro Valley Precipitation Station (6015) based on the data recorded from 1966 to 2011

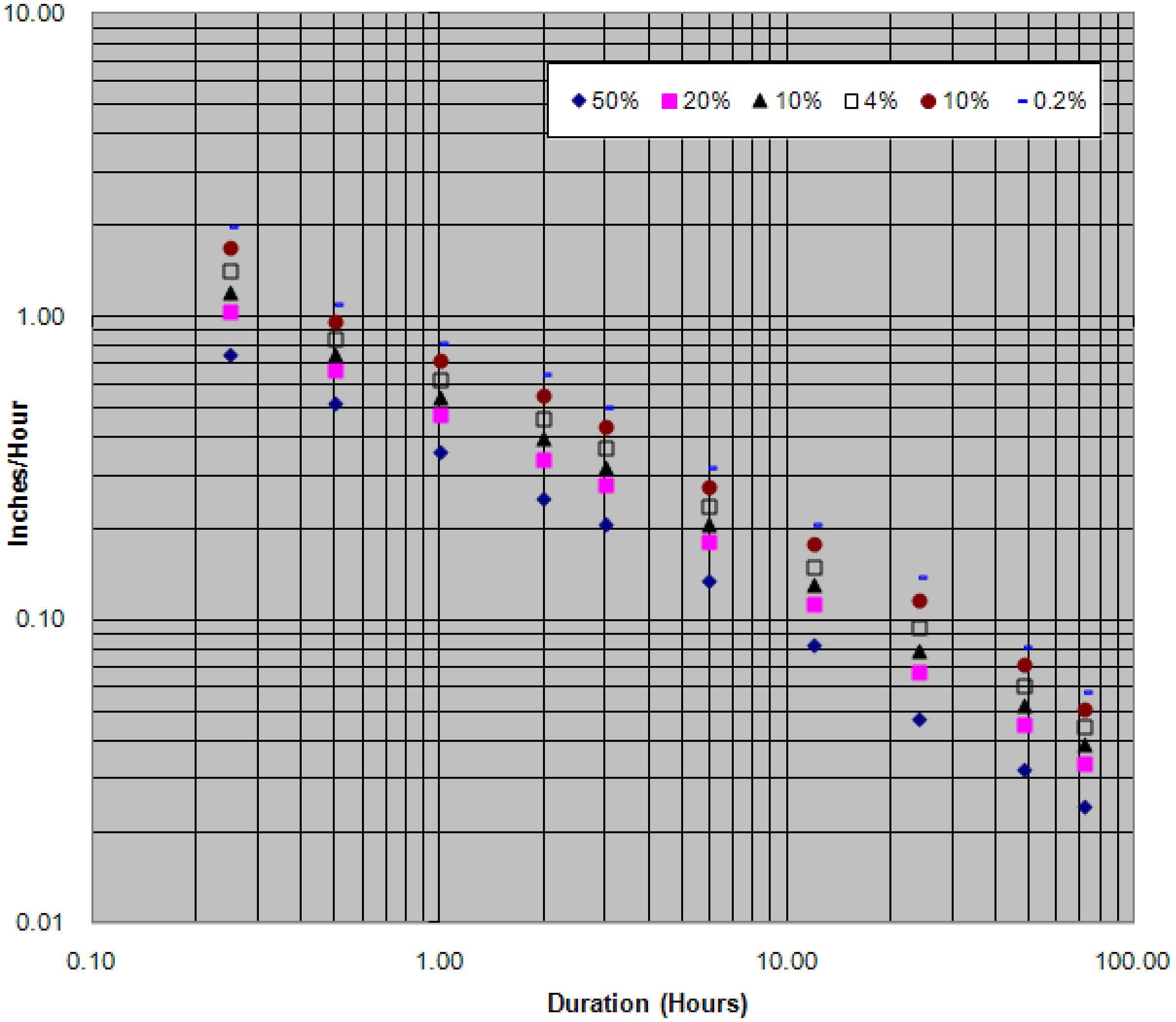

Figure B-5: Predicted Rainfall Intensity-Duration-Frequency relationship for Guadalupe Slough Precipitation Station (6016) based on the data recorded from 1976 to 2011

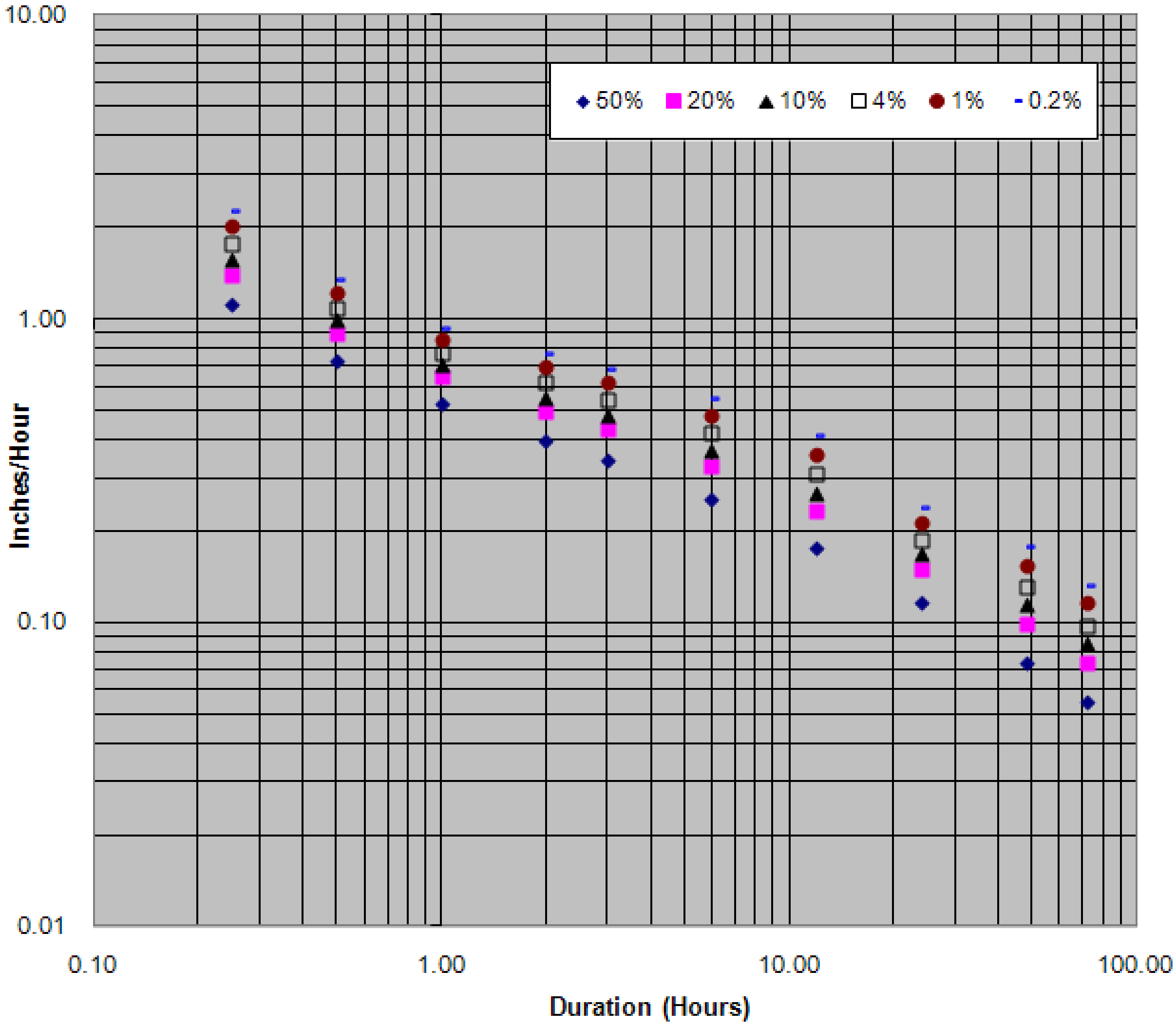

Figure B-6: Predicted Rainfall Intensity-Duration-Frequency relationship for Coe Park Precipitation Station (6017) based on the data recorded from 1971 to 2011

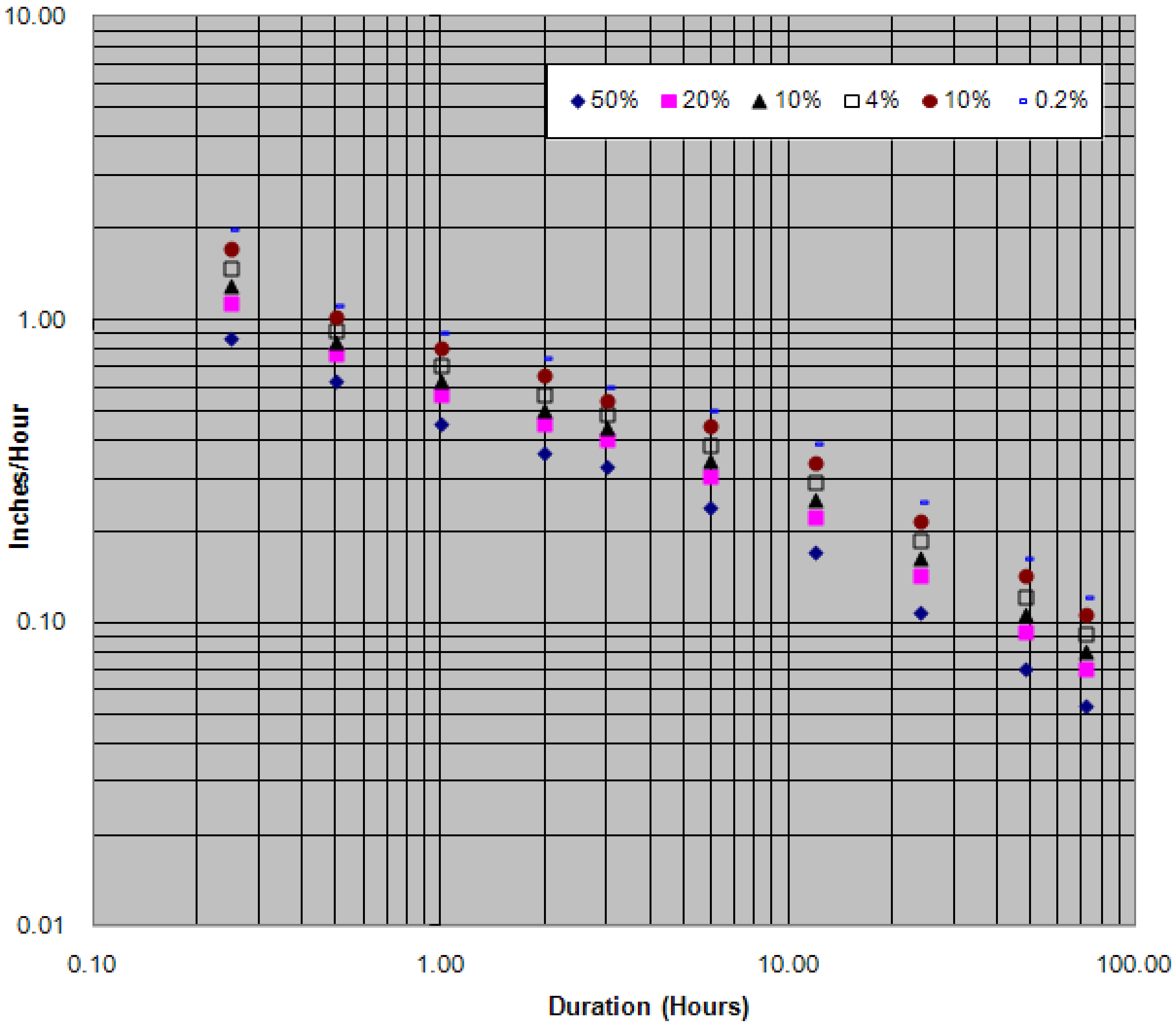

Figure B-7: Predicted Rainfall Intensity-Duration-Frequency relationship for Coit Ranch Precipitation Station (6018) based on the data recorded from 1965 to 2011

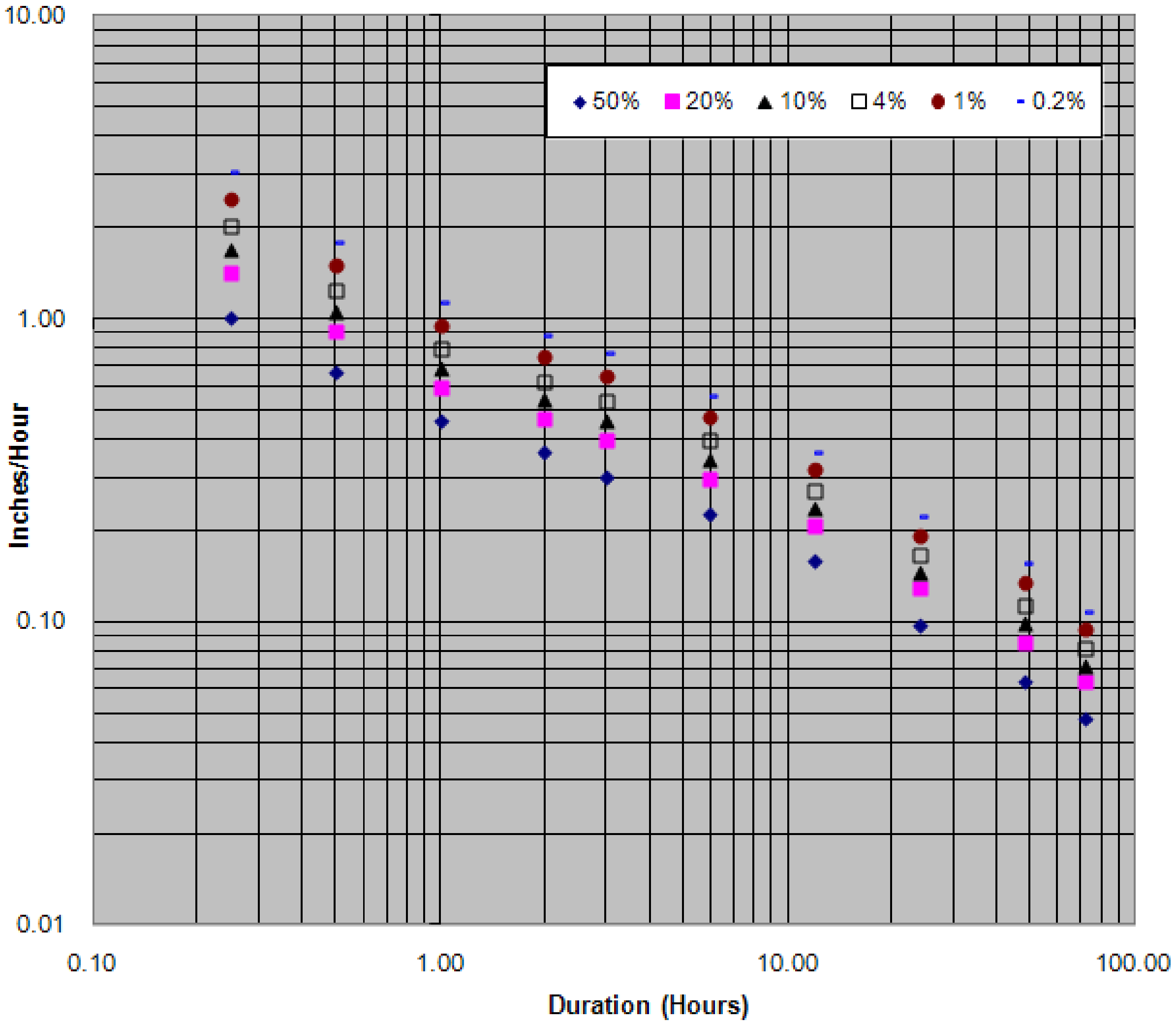

Figure B-8: Predicted Rainfall Intensity-Duration-Frequency relationship for Coyote Precipitation Station (6021) based on the data recorded from 1976 to 2011

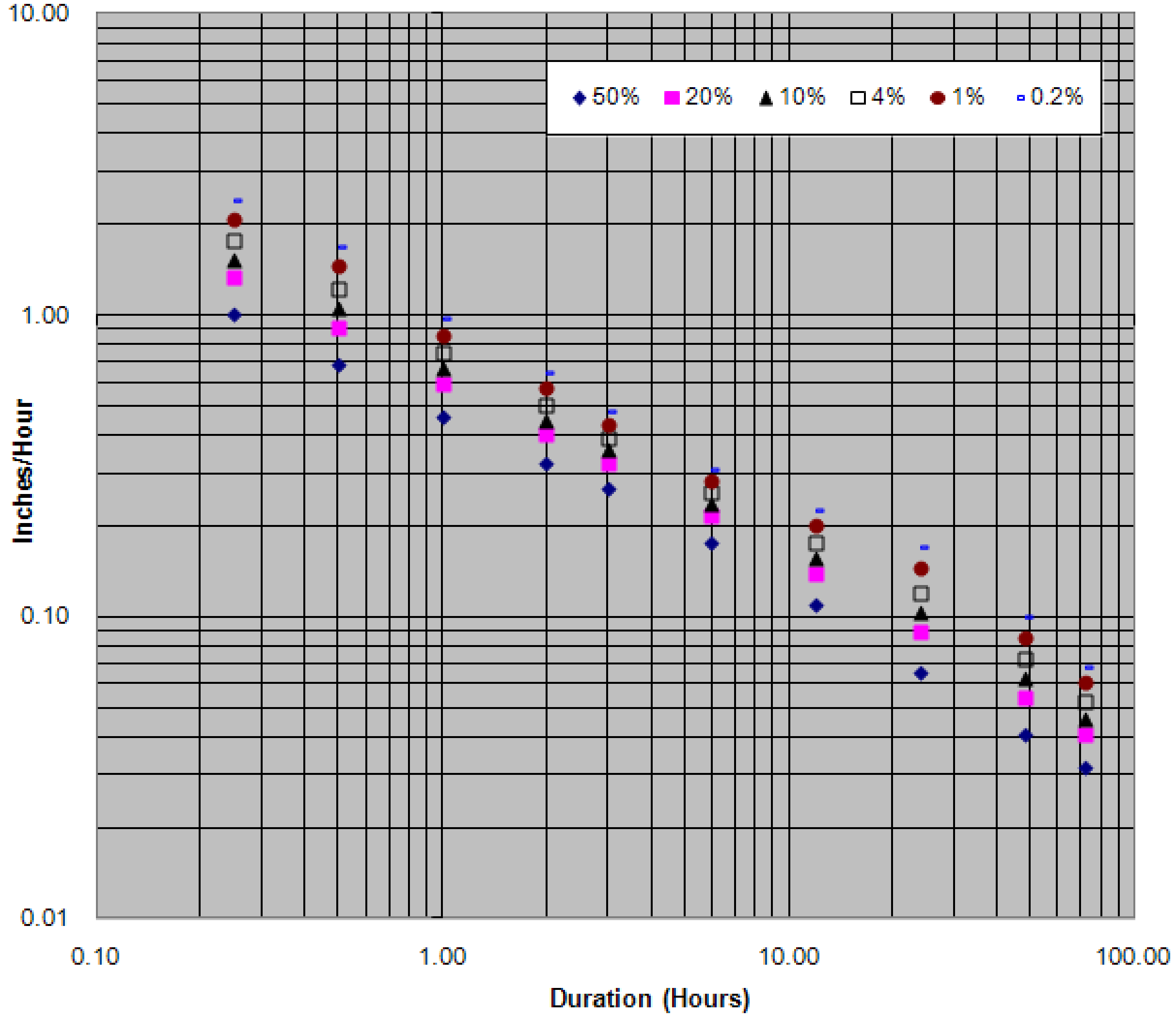

Figure B-9: Predicted Rainfall Intensity-Duration-Frequency relationship for Curtner Ranch Precipitation Station (6023) based on the data recorded from 1951 to 2011

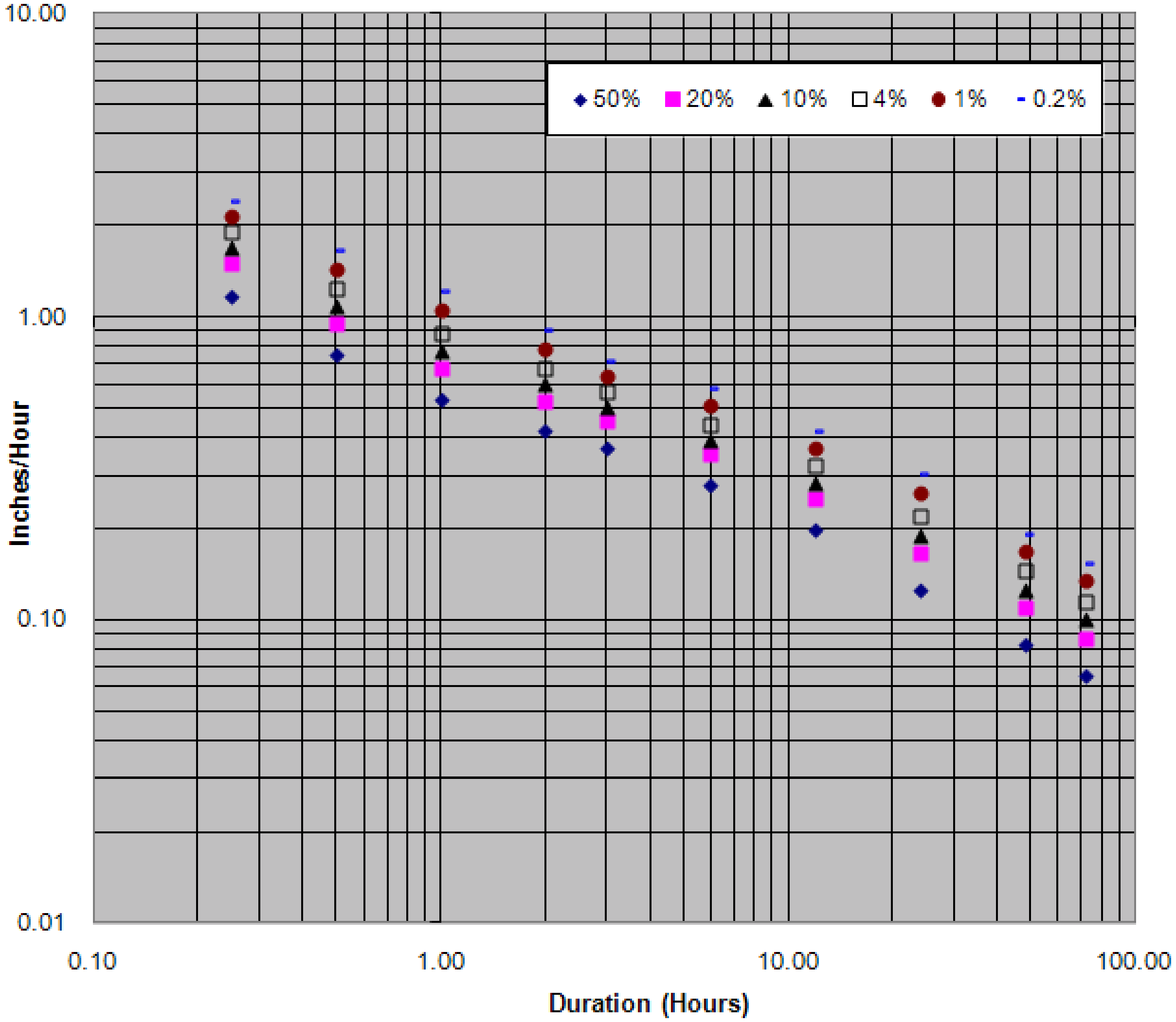

Figure B-10: Predicted Rainfall Intensity-Duration-Frequency relationship for Dahl Ranch Precipitation Station (6024) based on the data recorded from 1966 to 2011

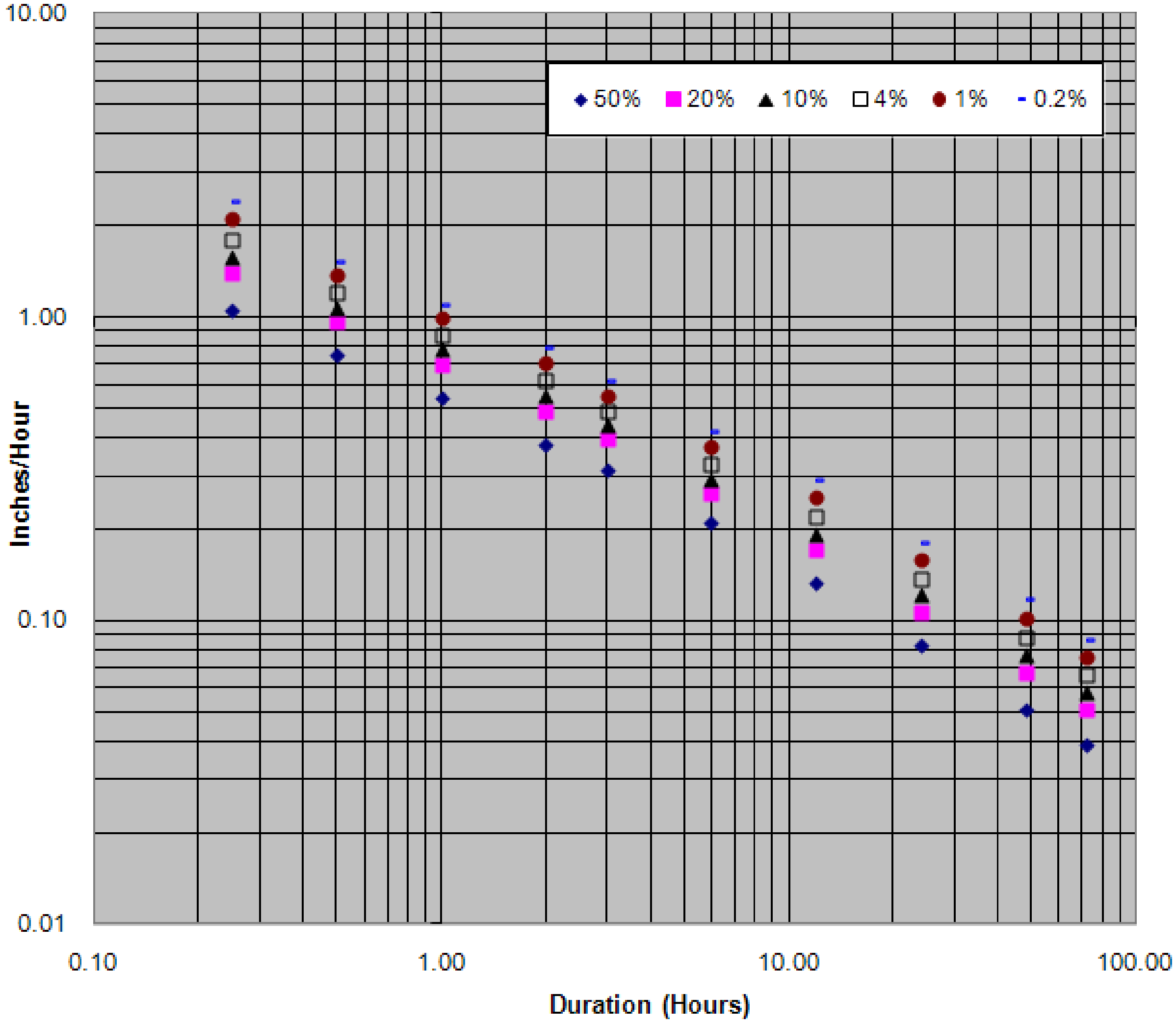

Figure B-11: Predicted Rainfall Intensity-Duration-Frequency relationship for Haskins Ranch Precipitation Station (6034) based on the data recorded from 1964 to 2011

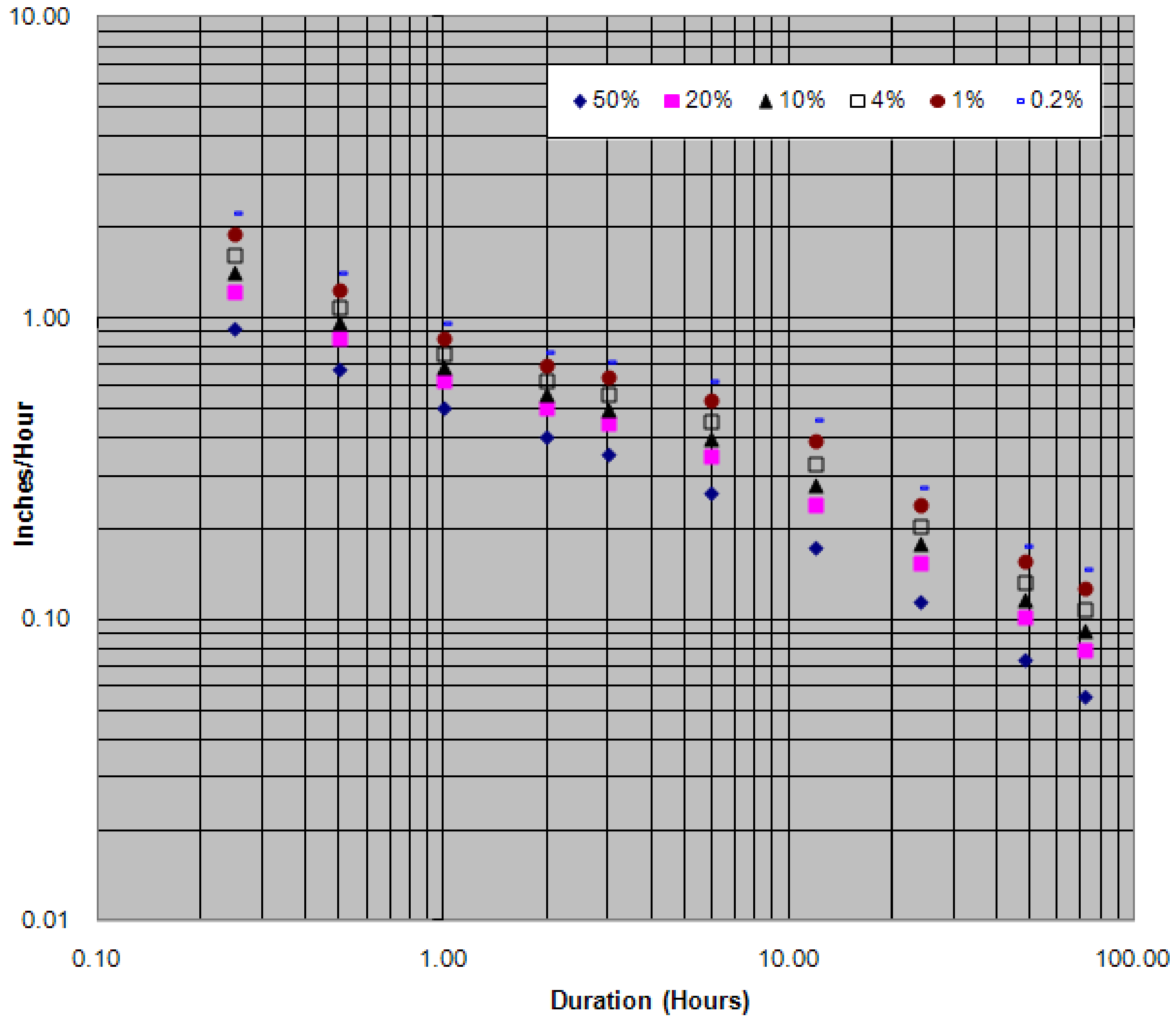

Figure B-12: Predicted Rainfall Intensity-Duration-Frequency relationship for Johnson Ranch Precipitation Station (6036) based on the data recorded from 1969 to 2011

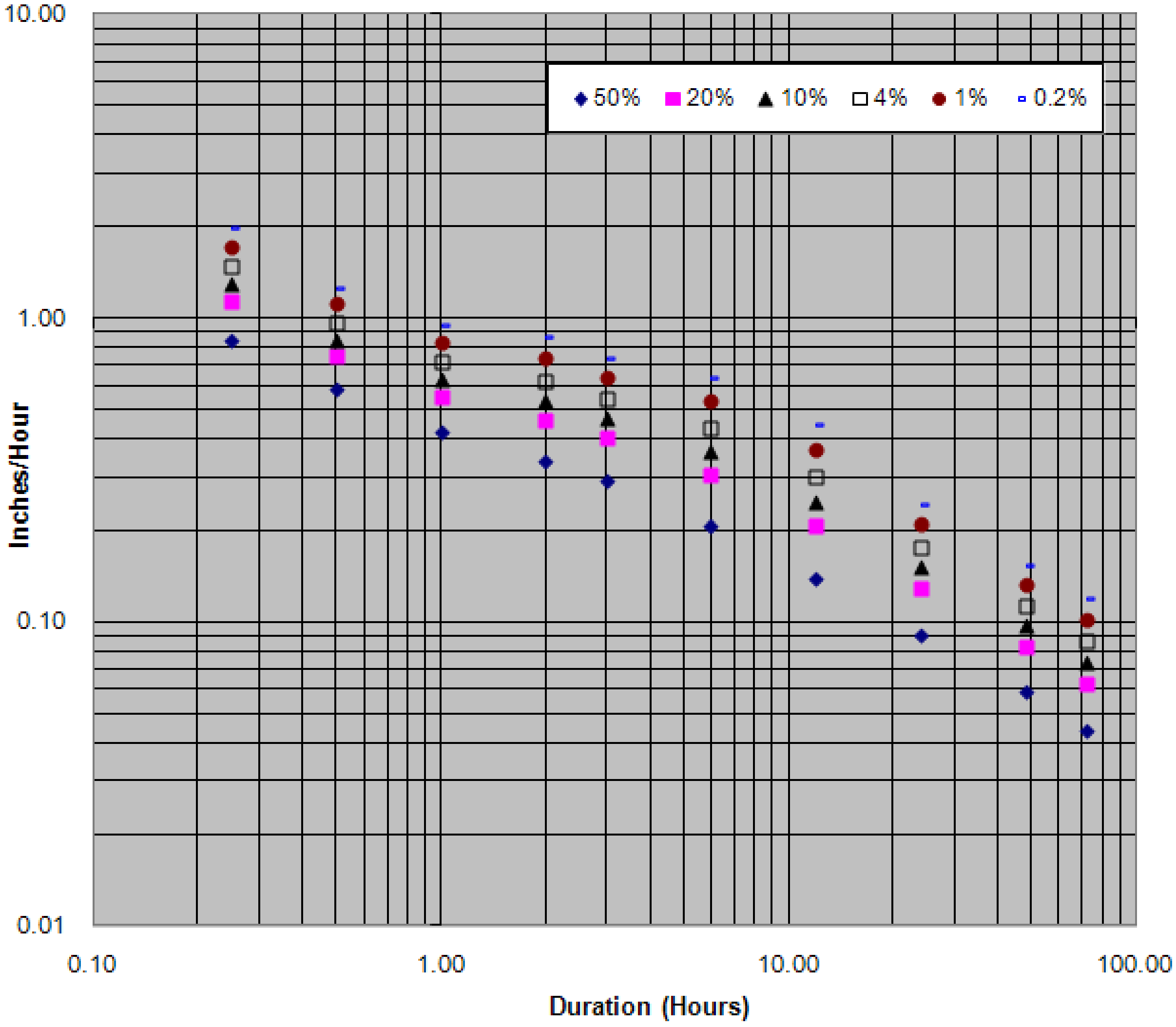

Figure B-13: Predicted Rainfall Intensity-Duration-Frequency relationship for Laguna Seca Precipitation Station (6037) based on the data recorded from 1977 to 2011

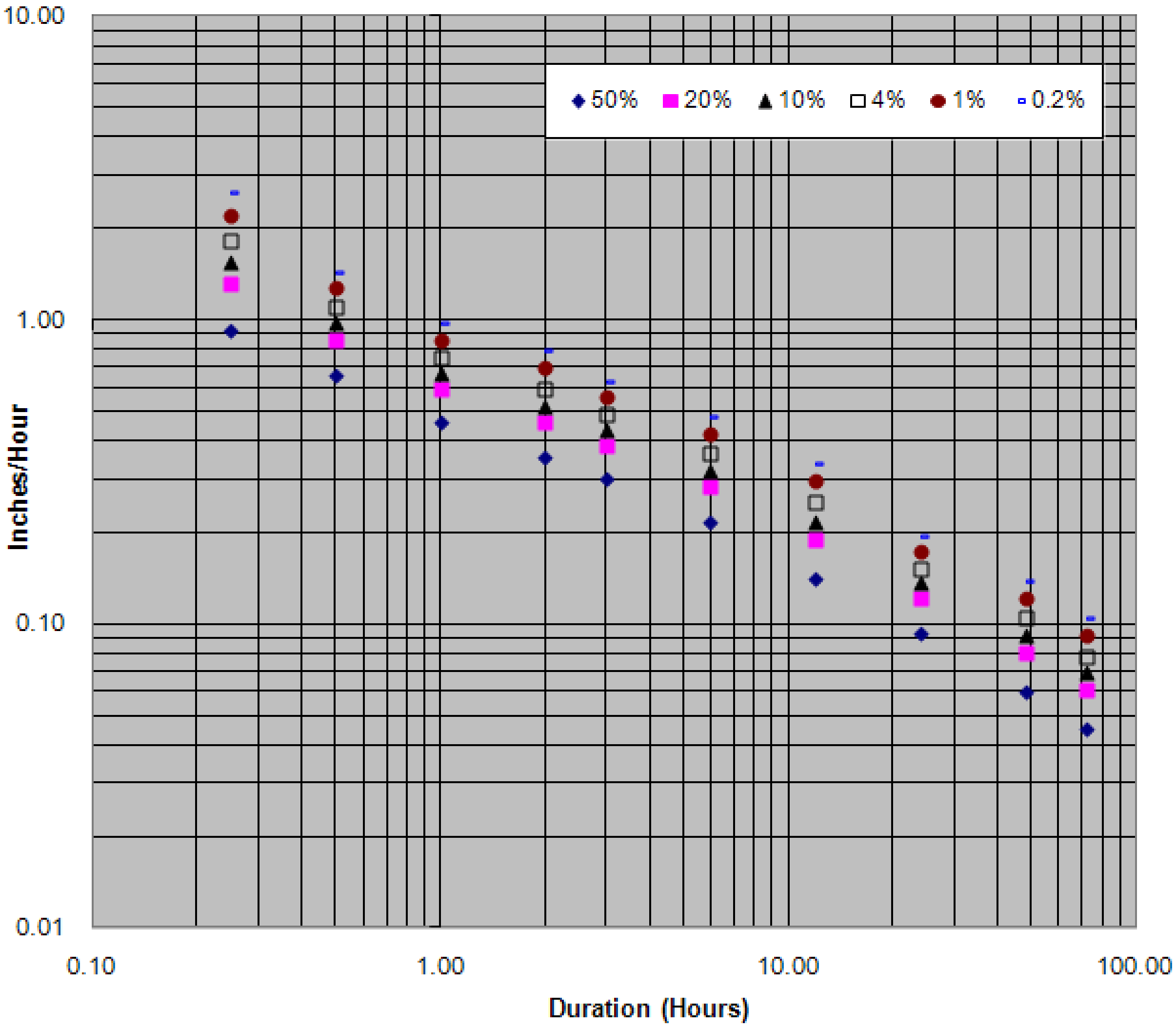

Figure B-14: Predicted Rainfall Intensity-Duration-Frequency relationship for Anderson Precipitation Station (6041) based on the data recorded from 1975 to 2011

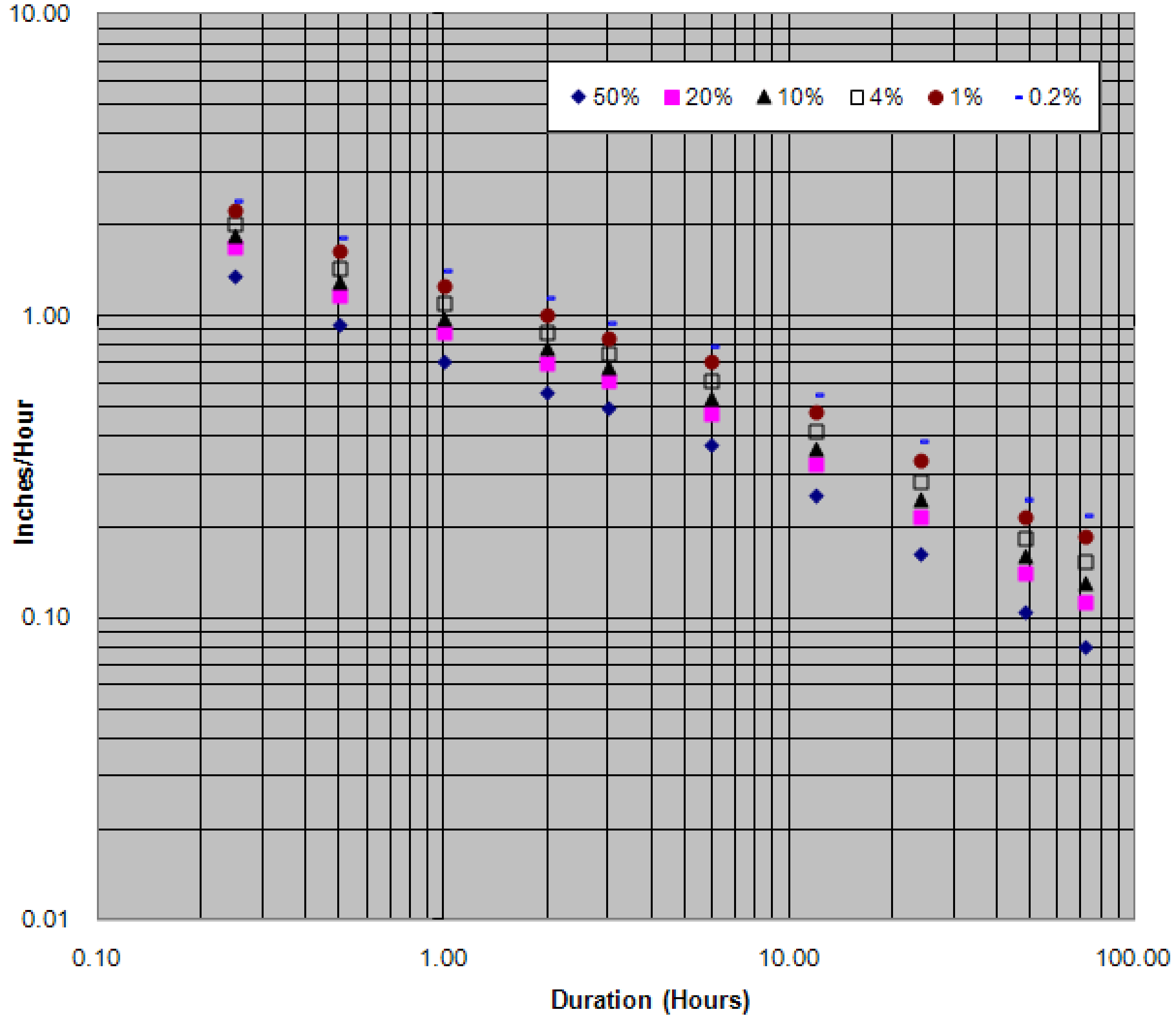

Figure B-15: Predicted Rainfall Intensity-Duration-Frequency relationship for Lexington Precipitation Station (6042) based on the data recorded from 1975 to 2011

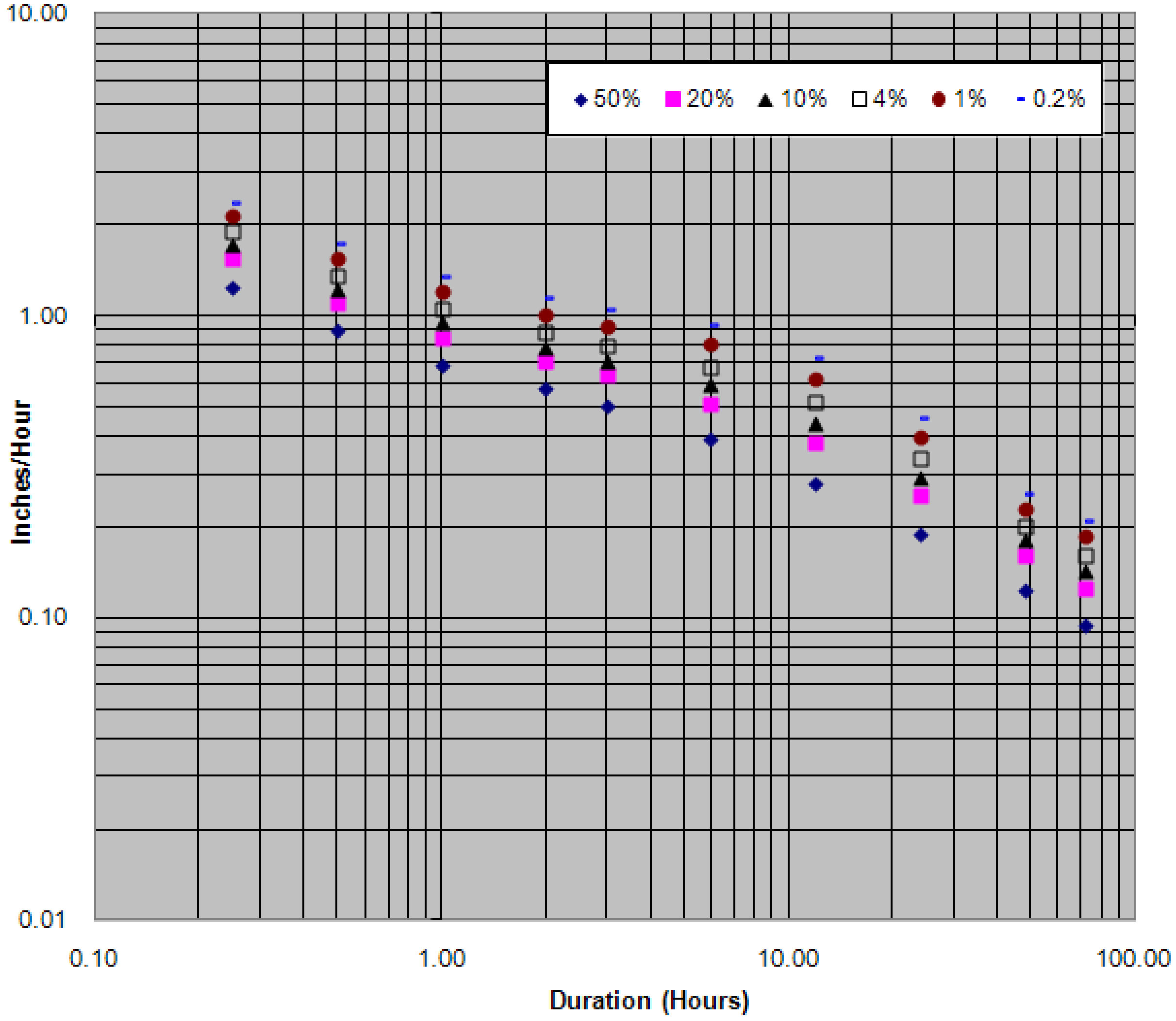

Figure B-16: Predicted Rainfall Intensity-Duration-Frequency relationship for Loma Prieta Precipitation Station (6042) based on the data recorded from 1966 to 2011

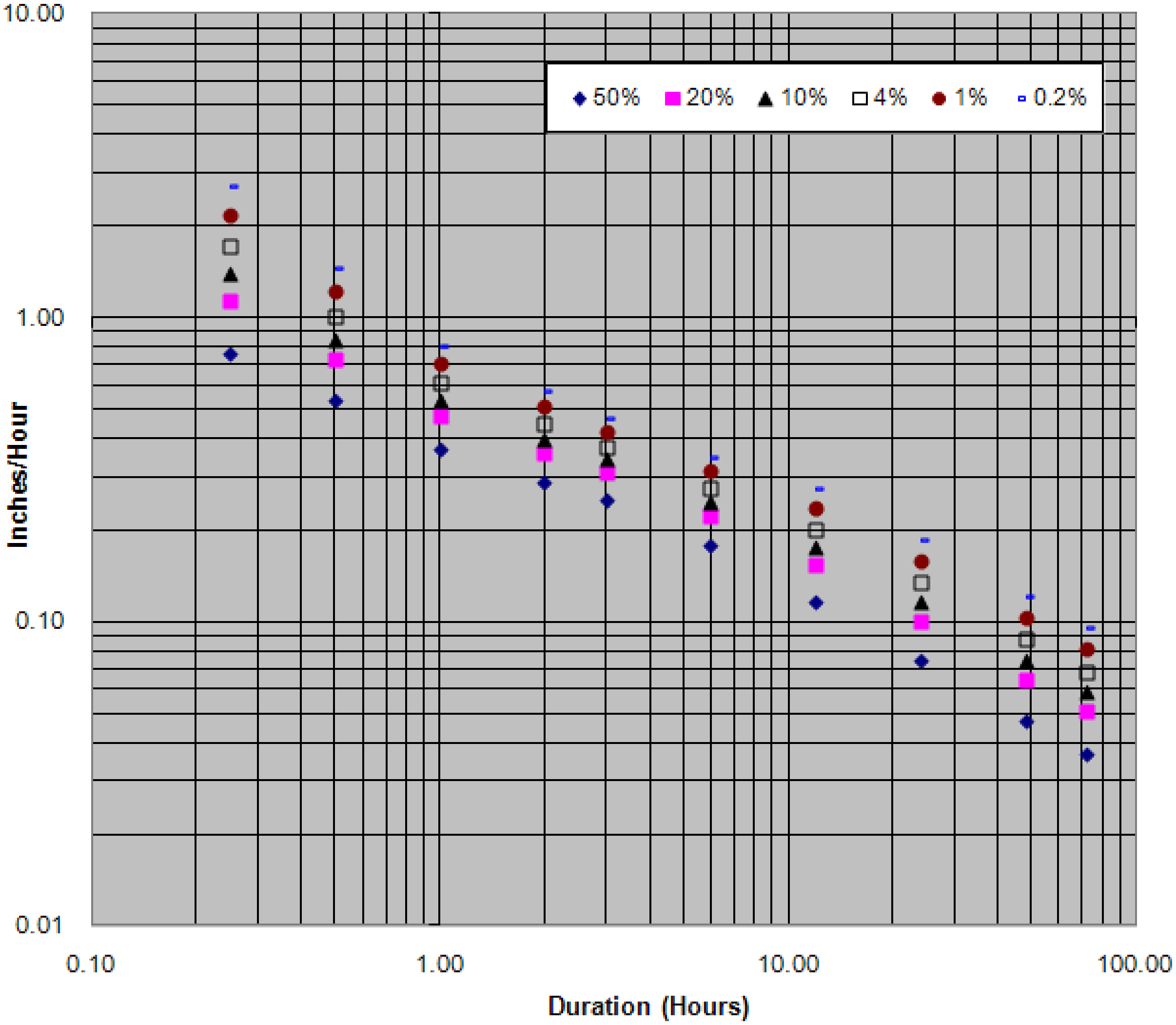

Figure B-17: Predicted Rainfall Intensity-Duration-Frequency relationship for Sunnyvale WPCP Precipitation Station (6048) based on the data recorded from 1975 to 2011

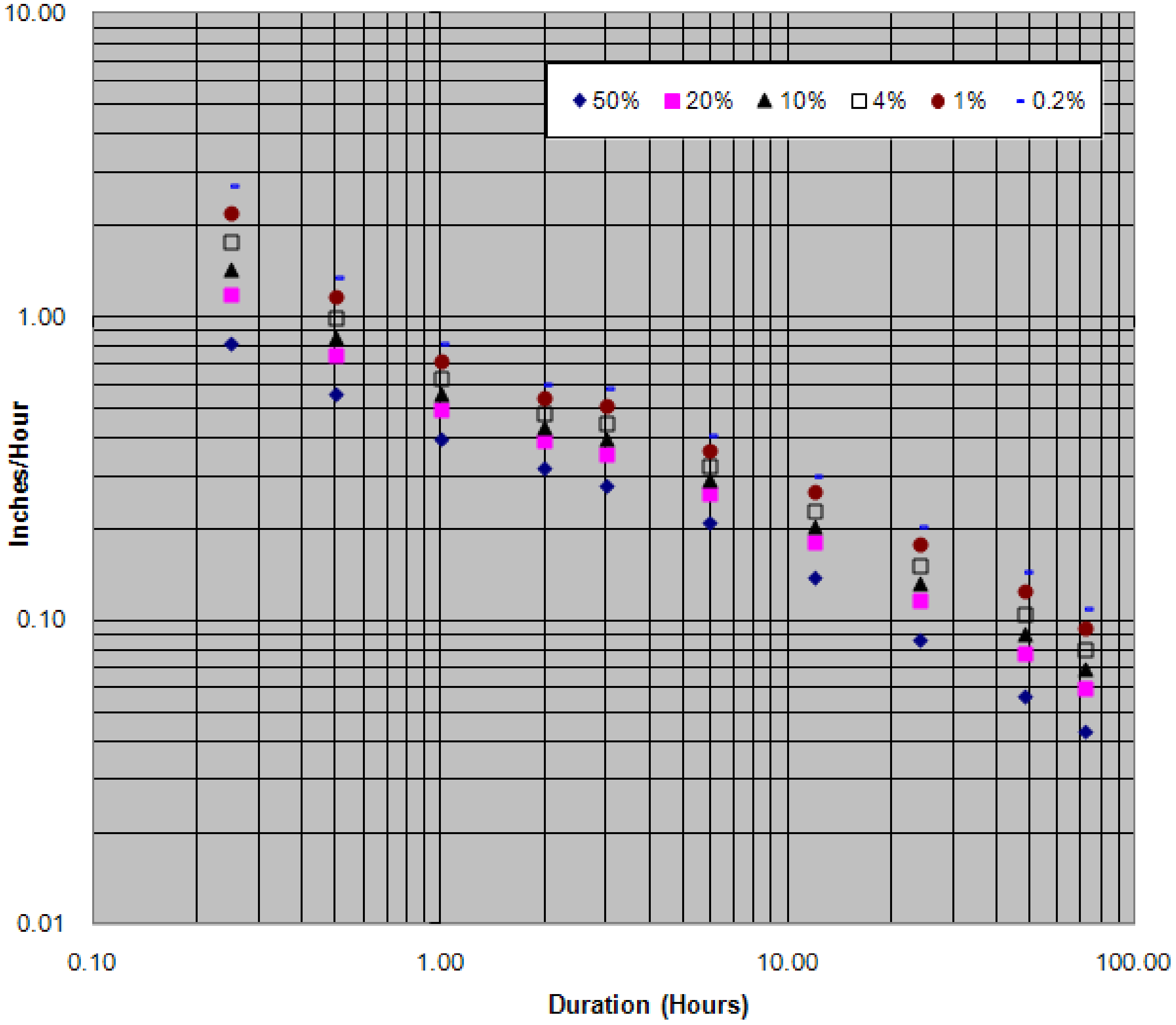

Figure B-18: Predicted Rainfall Intensity-Duration-Frequency relationship for Maryknoll Precipitation Station (6053) based on the data recorded from 1968 to 2011

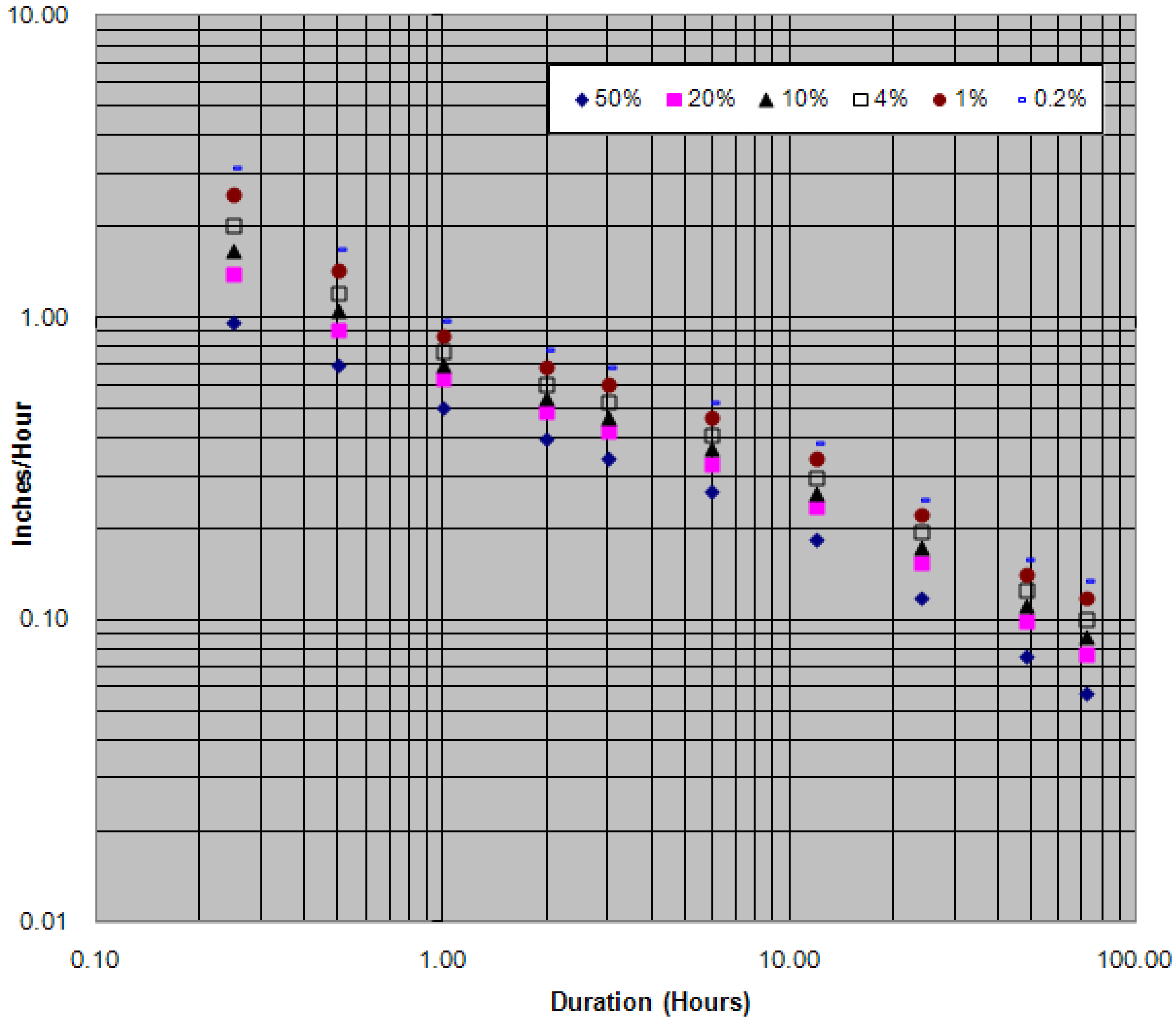

Figure B-19: Predicted Rainfall Intensity-Duration-Frequency relationship for Mt. Hamilton Precipitation Station (6067) based on the data recorded from 1966 to 2011

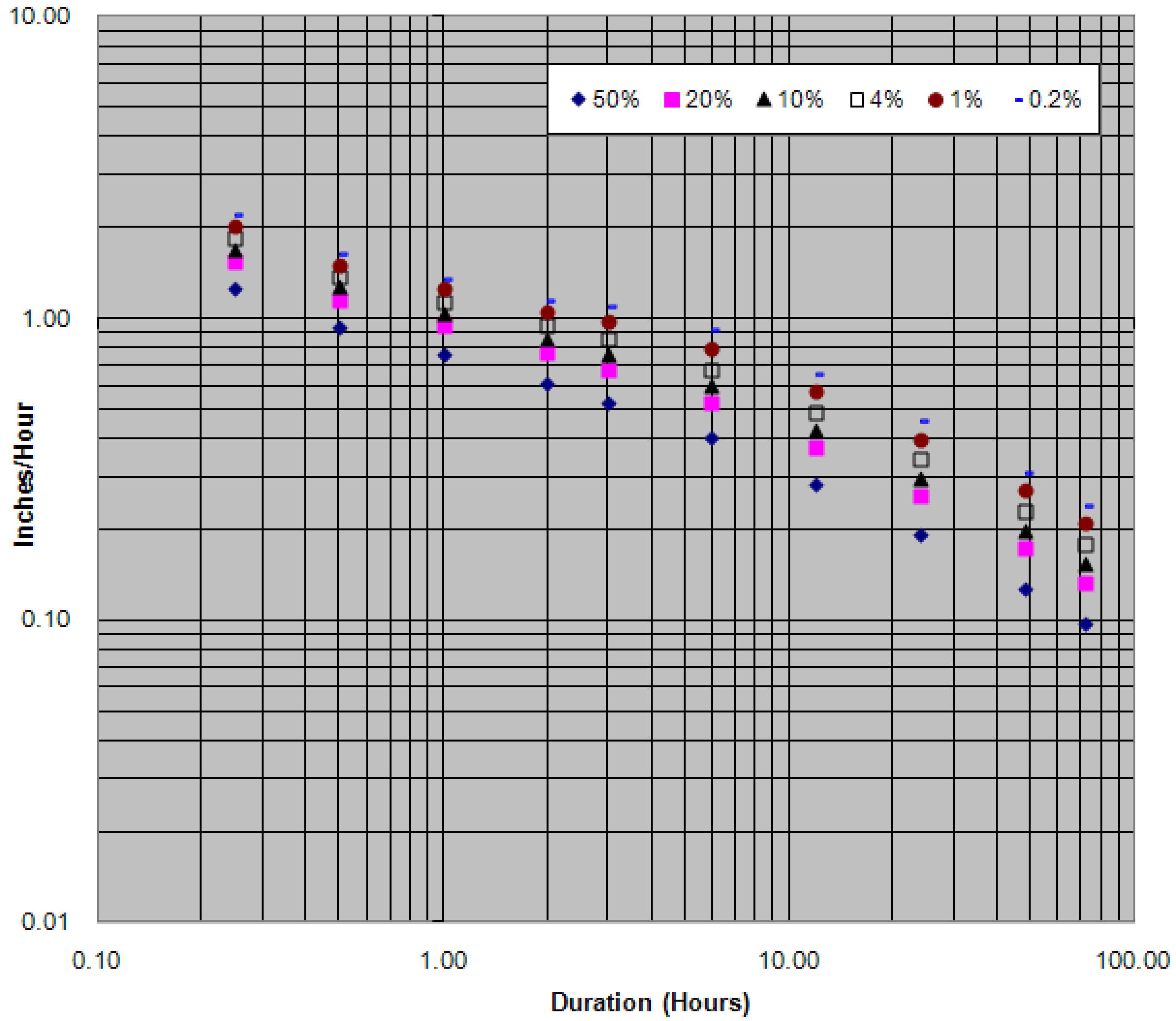

Figure B-20: Predicted Rainfall Intensity-Duration-Frequency relationship for Mt. Umunhum Precipitation Station (6069) based on the data recorded from 1969 to 2011

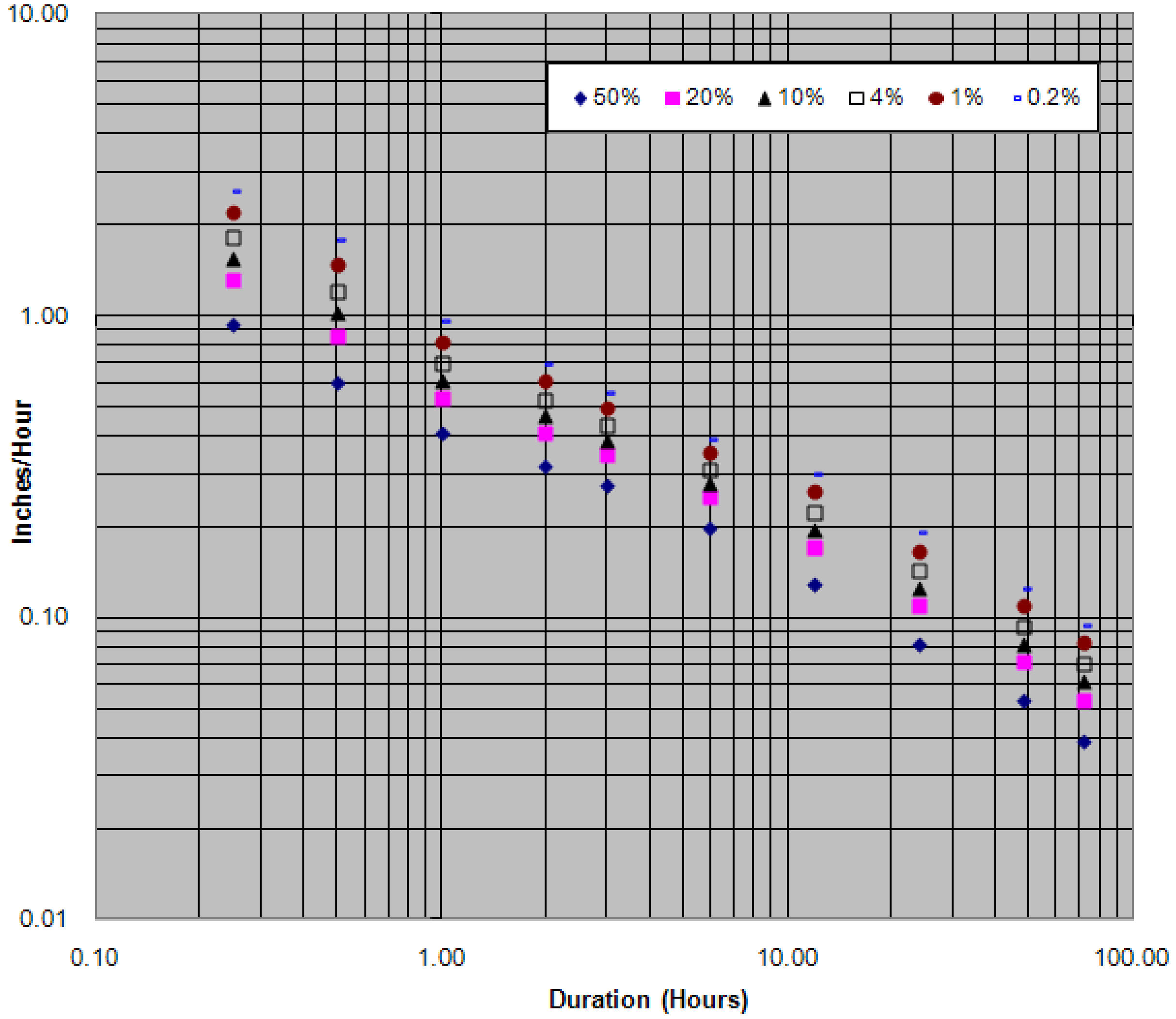

Figure B-21: Predicted Rainfall Intensity-Duration-Frequency relationship for Peabody Precipitation Station (6075) based on the data recorded from 1972 to 2008

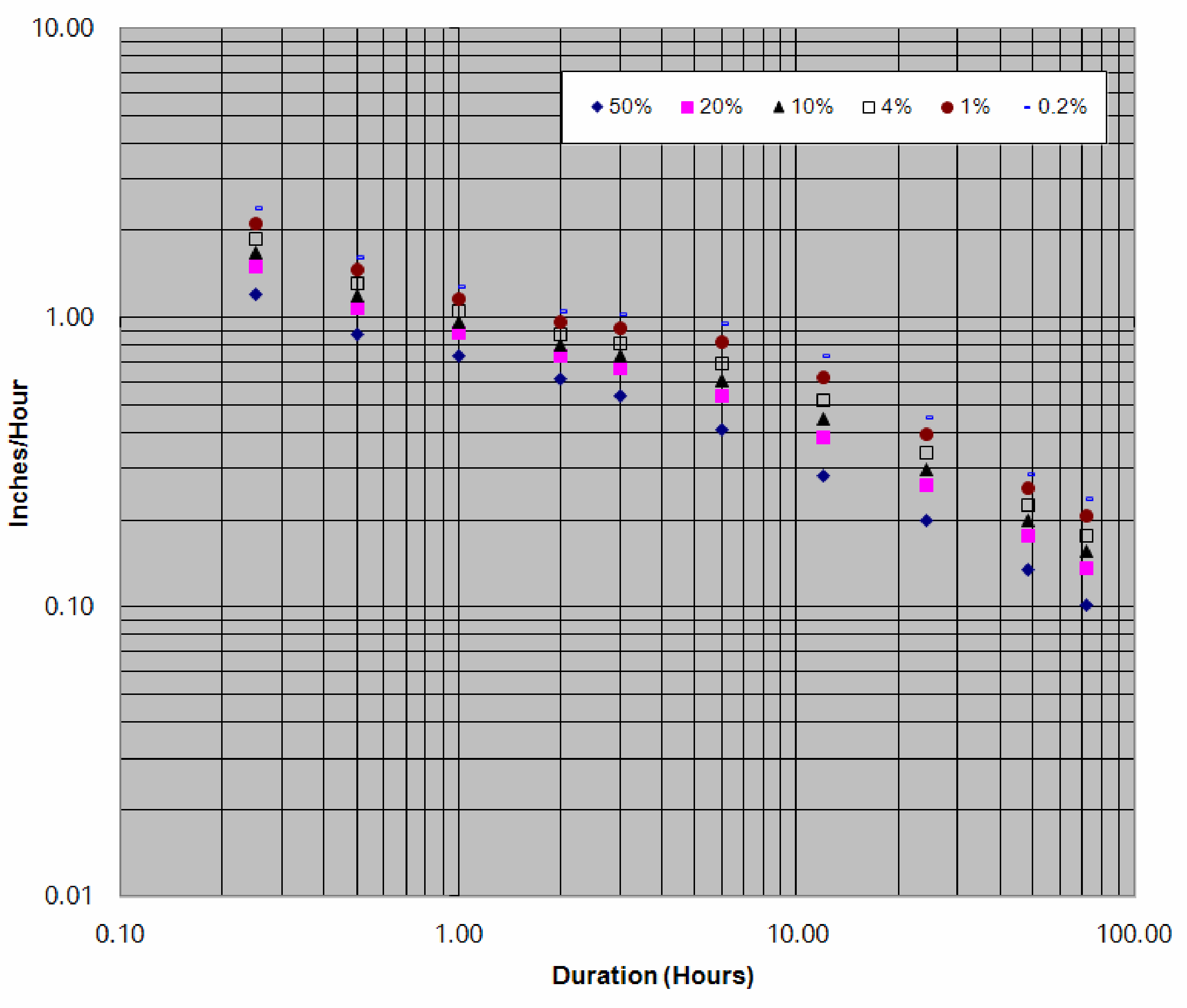

Figure B-22: Predicted Rainfall Intensity-Duration-Frequency relationship for Valley Christian Precipitation Station (6077) based on the data recorded from 1967 to 2011

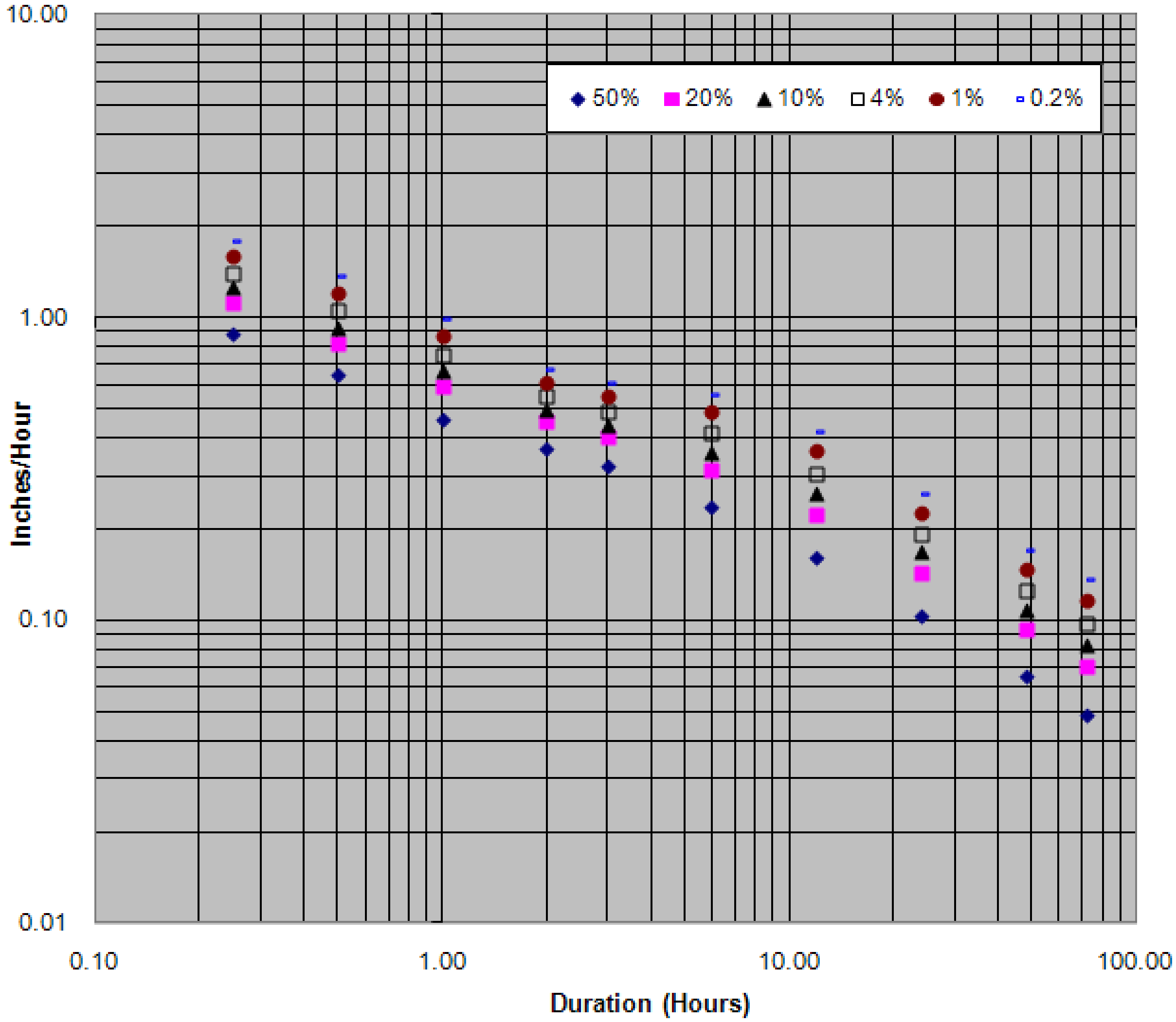

Figure B-23: Predicted Rainfall Intensity-Duration-Frequency relationship for Rinconada WTP Precipitation Station (6079) based on the data recorded from 1976 to 2011

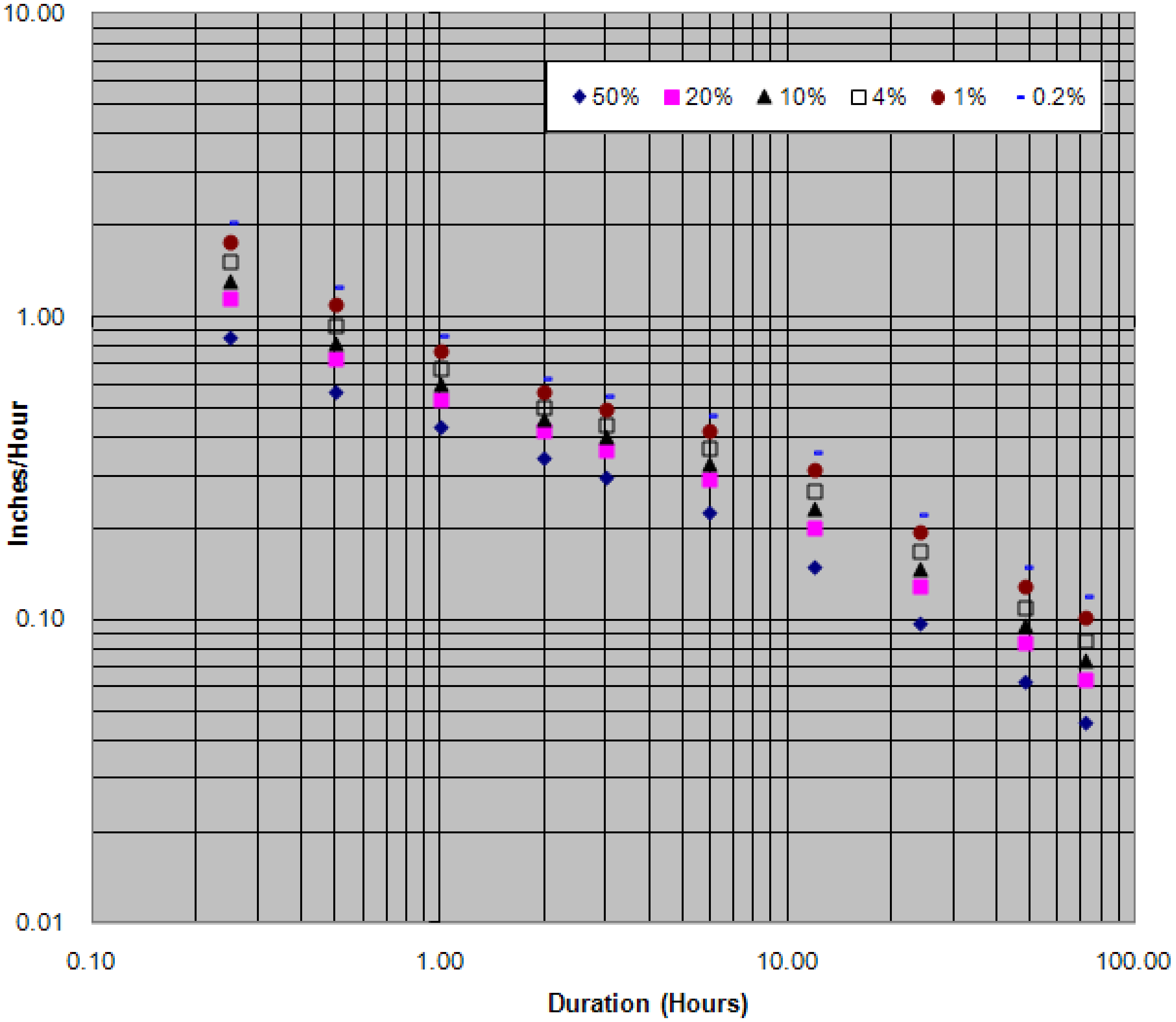

Figure B-24: Predicted Rainfall Intensity-Duration-Frequency relationship for Shanti Ashrama Precipitation Station (6098) based on the data recorded from 1965 to 2011

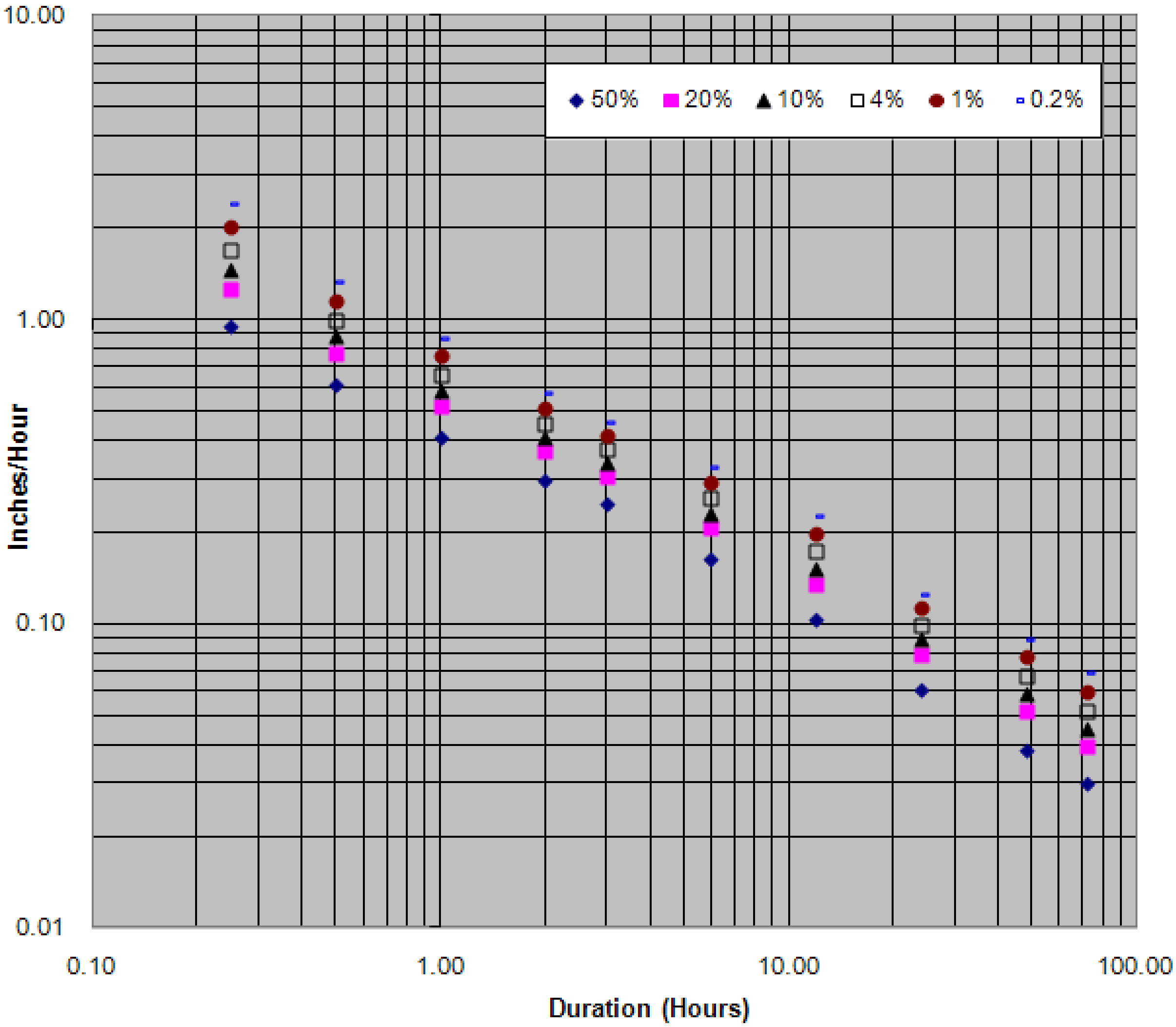

Figure B-25: Predicted Rainfall Intensity-Duration-Frequency relationship for Penitencia WTP Precipitation Station (6099) based on the data recorded from 1967 to 2011

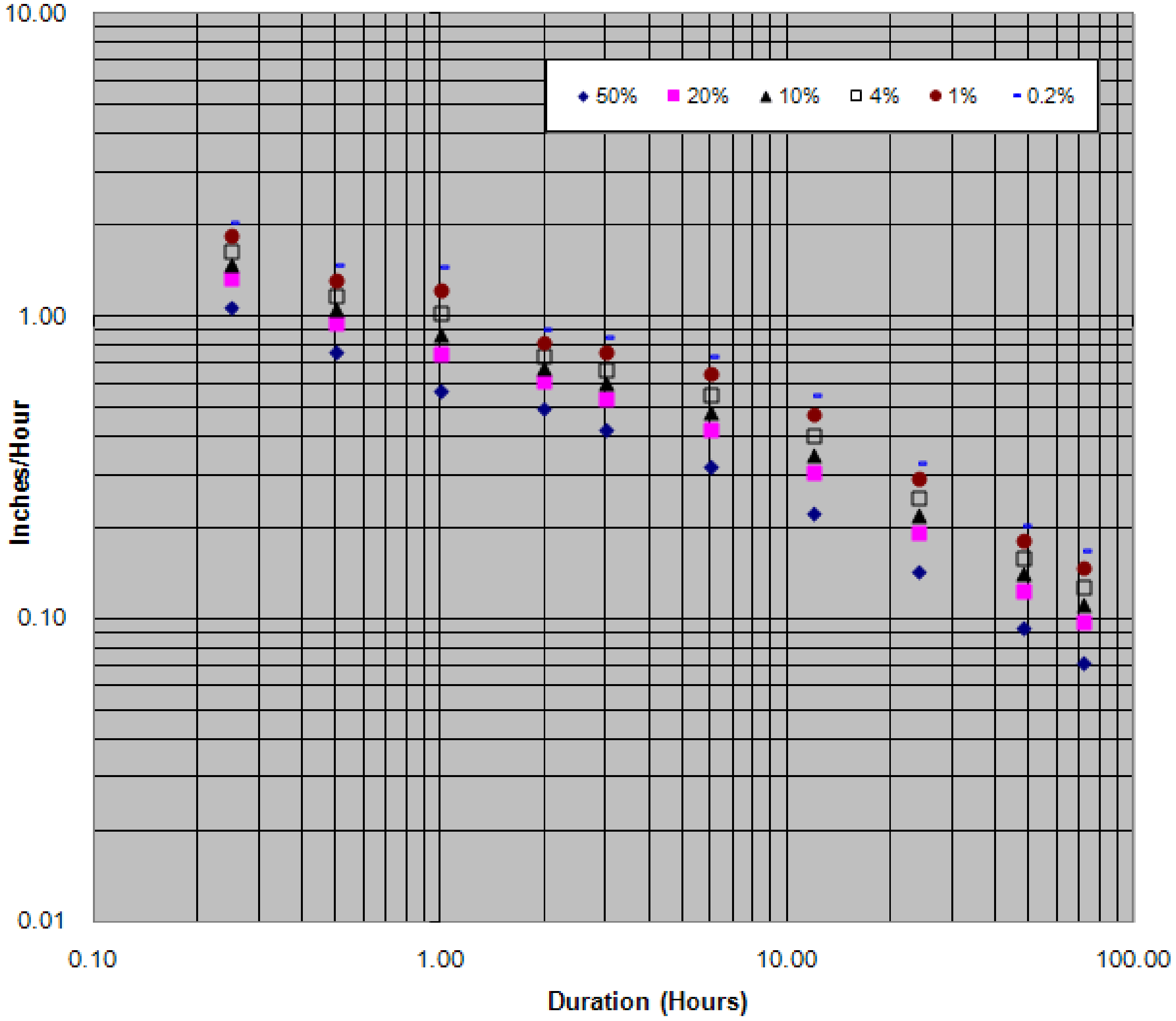

Figure B-26: Predicted Rainfall Intensity-Duration-Frequency relationship for Stevens Creek Precipitation Station (6100) based on the data recorded from 1967 to 2011

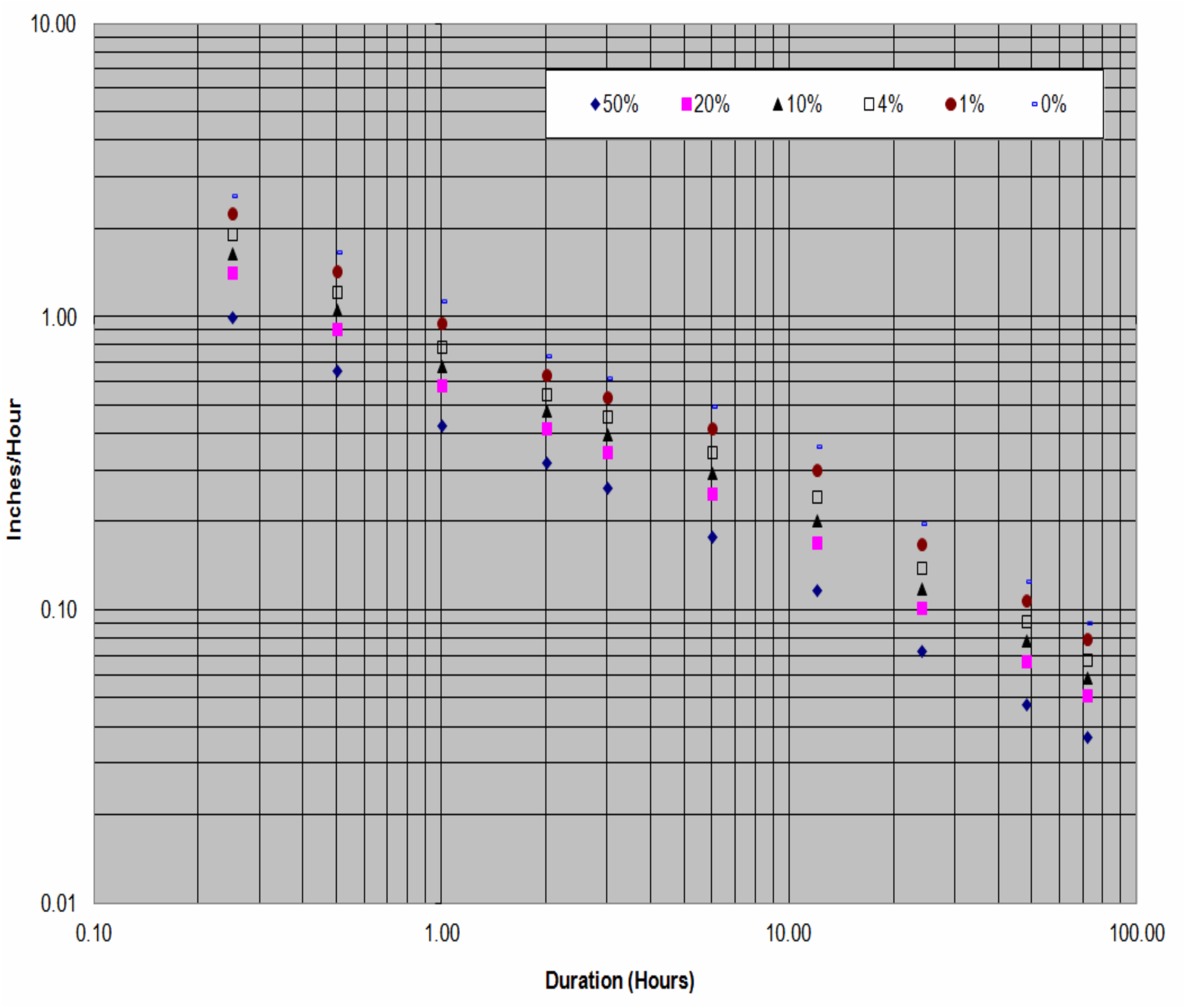

Figure B-27: Predicted Rainfall Intensity-Duration-Frequency relationship for U. T. C. Precipitation Station (6102) based on the data recorded from 1966 to 2011

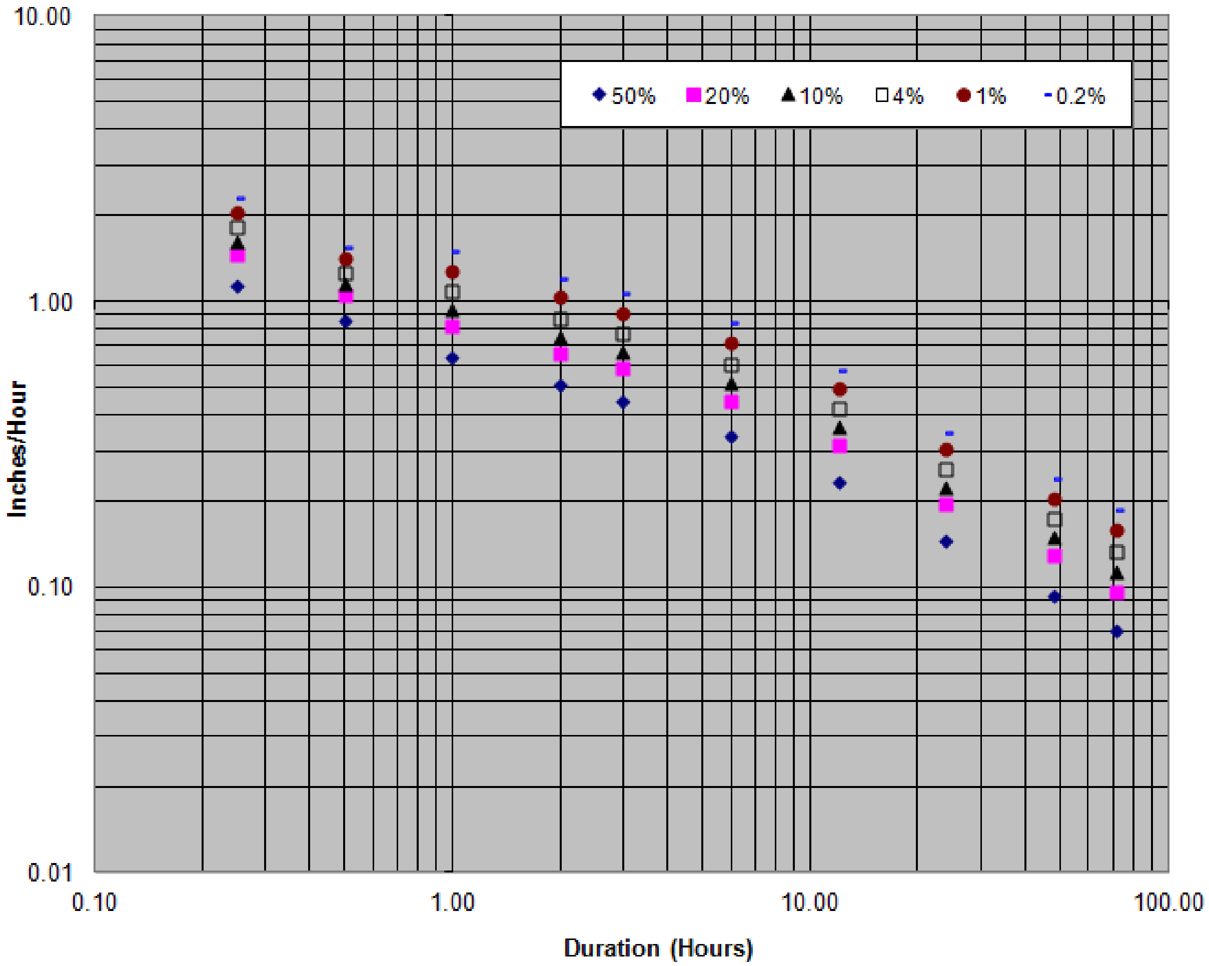

Figure B-28: Predicted Rainfall Intensity-Duration-Frequency relationship for Uvas Reservoir Precipitation Station (6104) based on the data recorded from 1975 to 2011

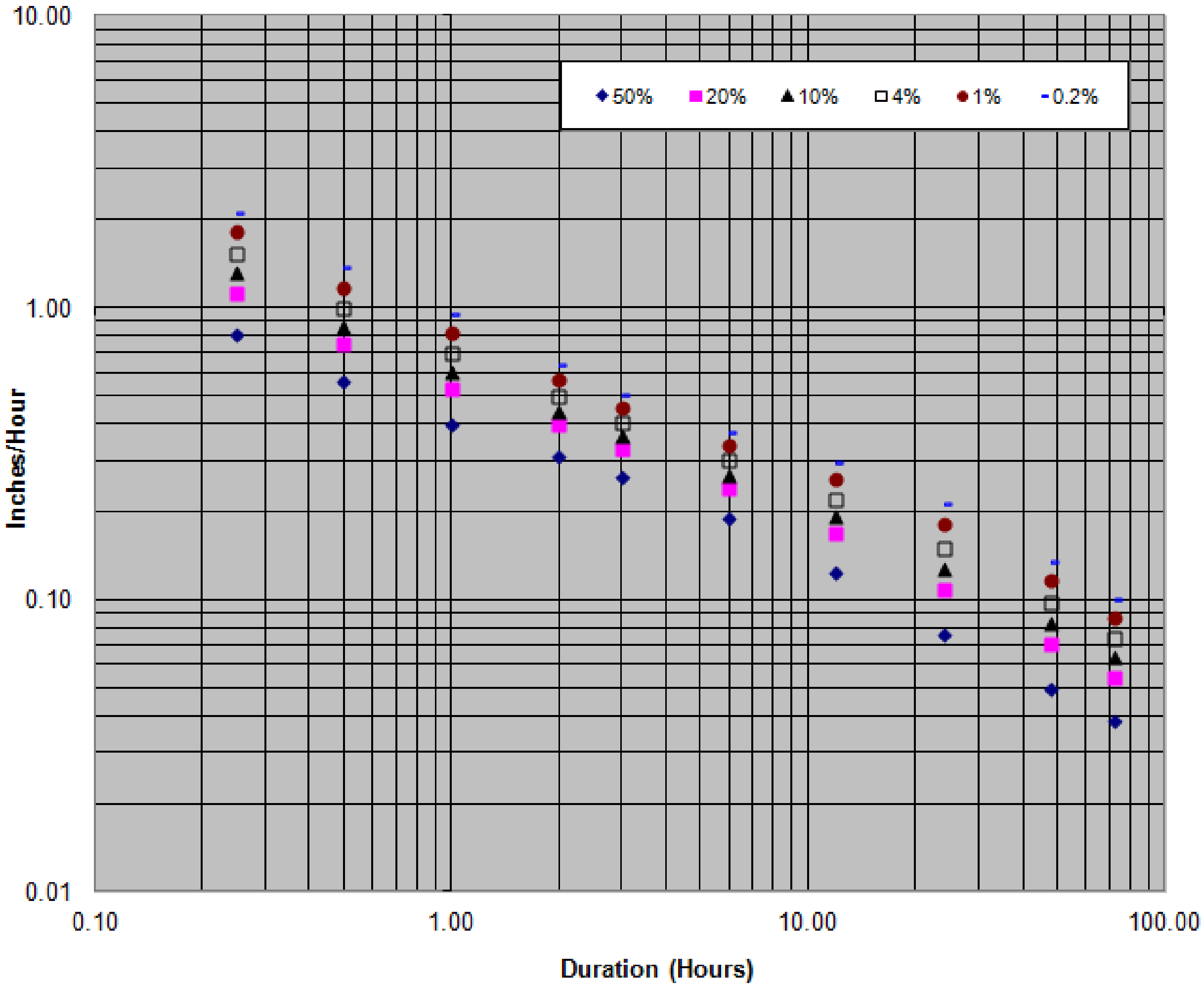

Figure B-29: Predicted Rainfall Intensity-Duration-Frequency relationship for West Yard Precipitation Station (6108) based on the data recorded from 1971 to 2011

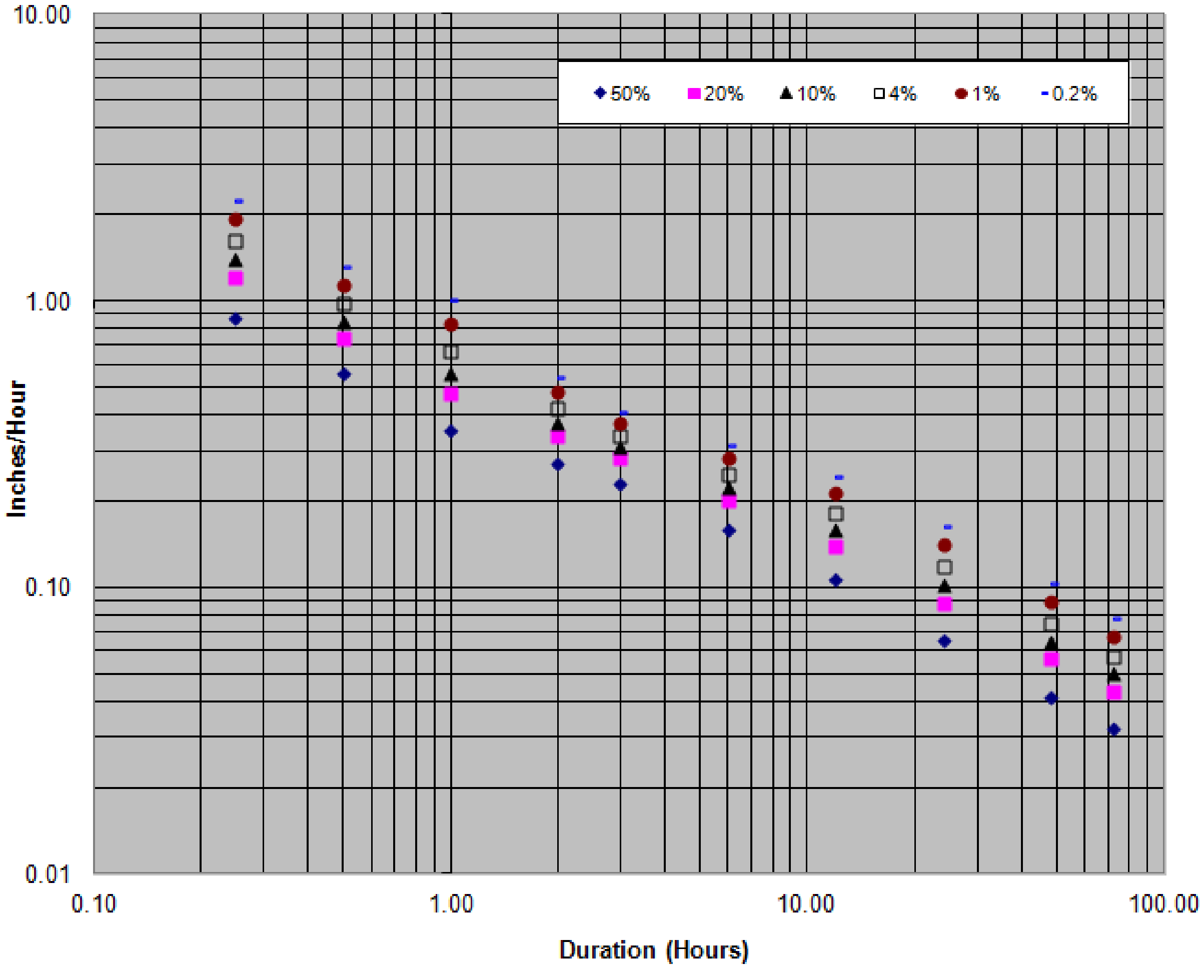

Figure B-30: Predicted Rainfall Intensity-Duration-Frequency relationship for Mountain View Precipitation Station (6121) based on the data recorded from 1976 to 2011

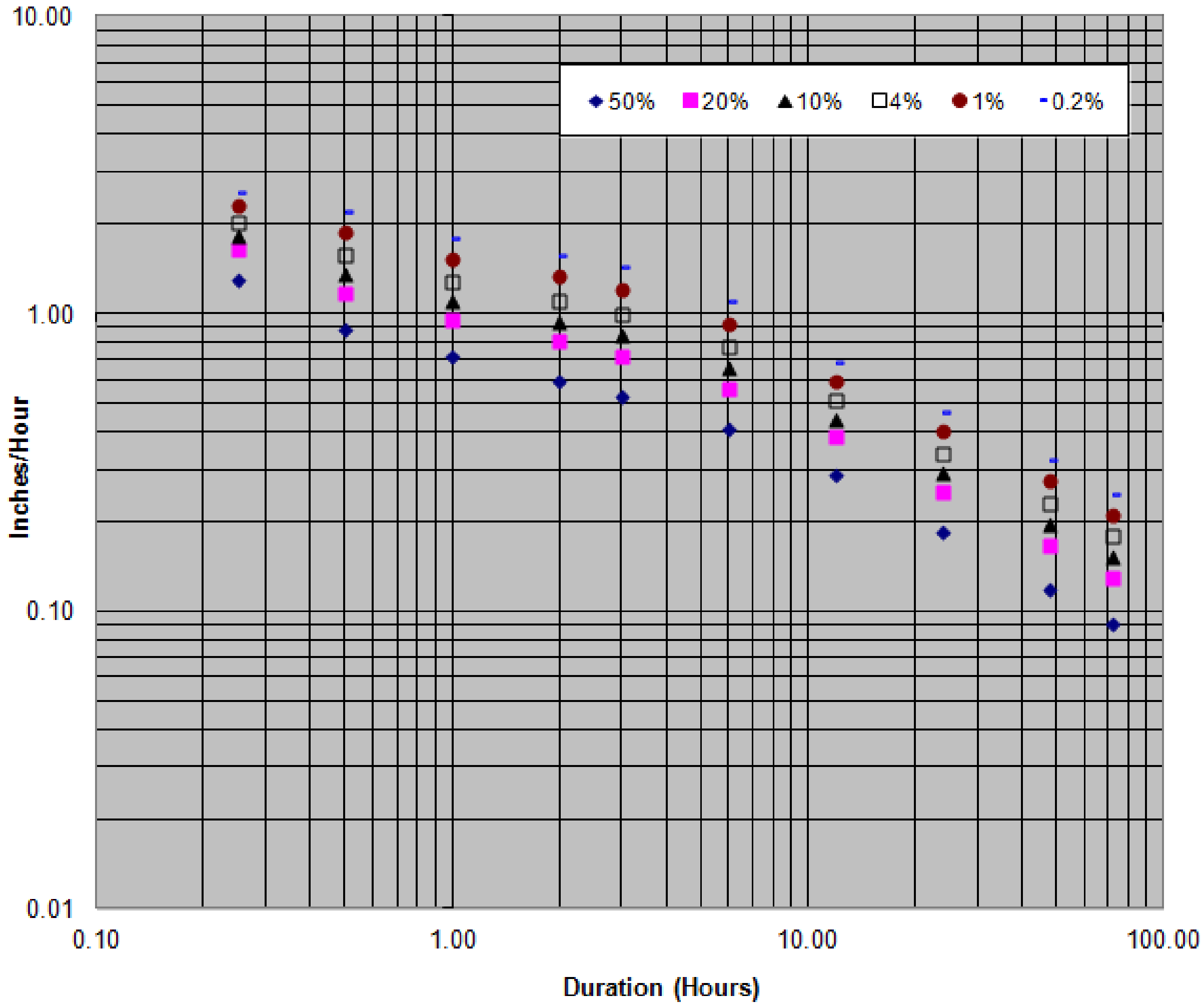

Figure B-31: Predicted Rainfall Intensity-Duration-Frequency relationship for Guadalupe Watershed Precipitation Station (6123) based on the data recorded from 1976 to 2011

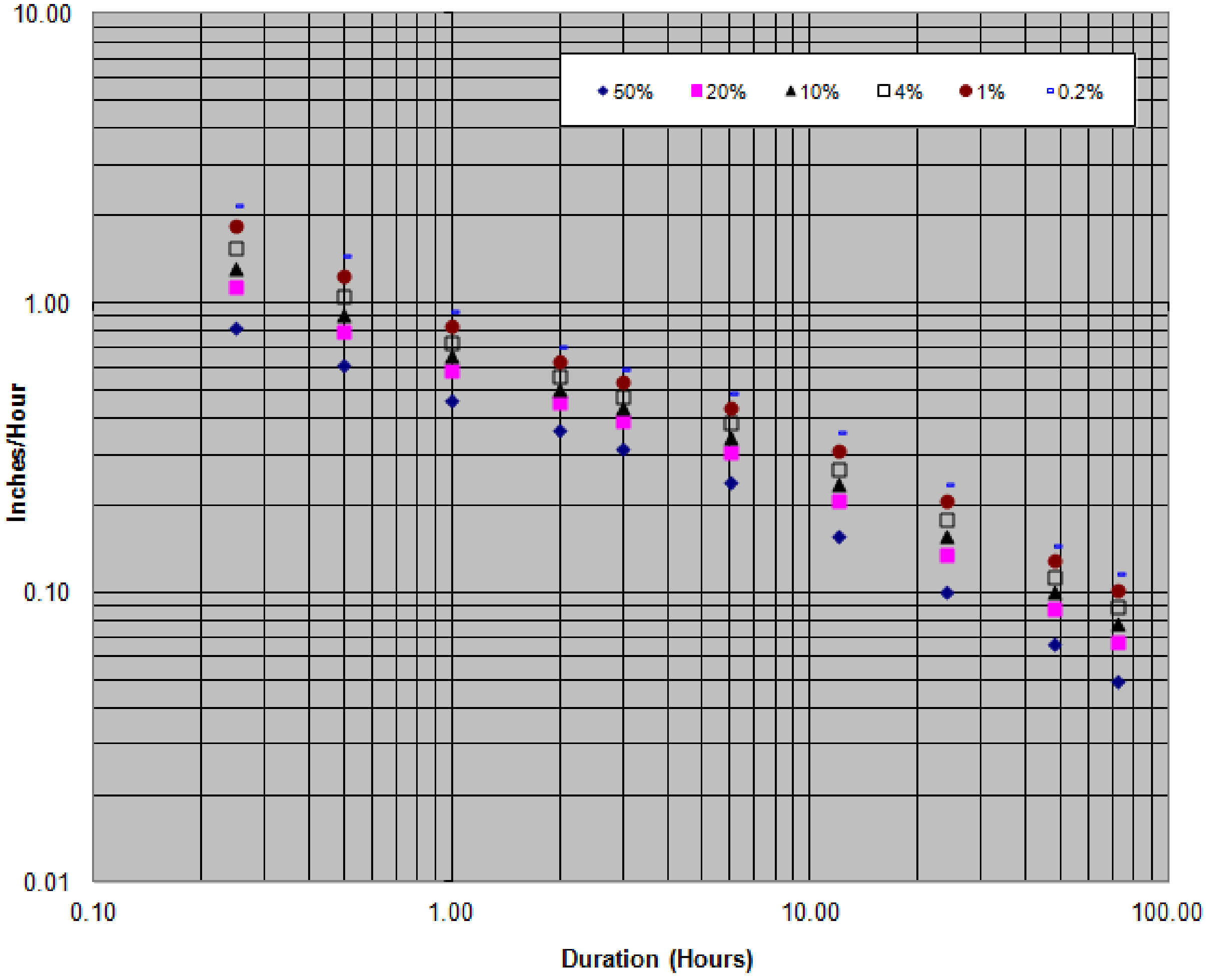

Figure B-32: Predicted Rainfall Intensity-Duration-Frequency relationship for Vasona Pump Precipitation Station (6125) based on the data recorded from 1977 to 2011

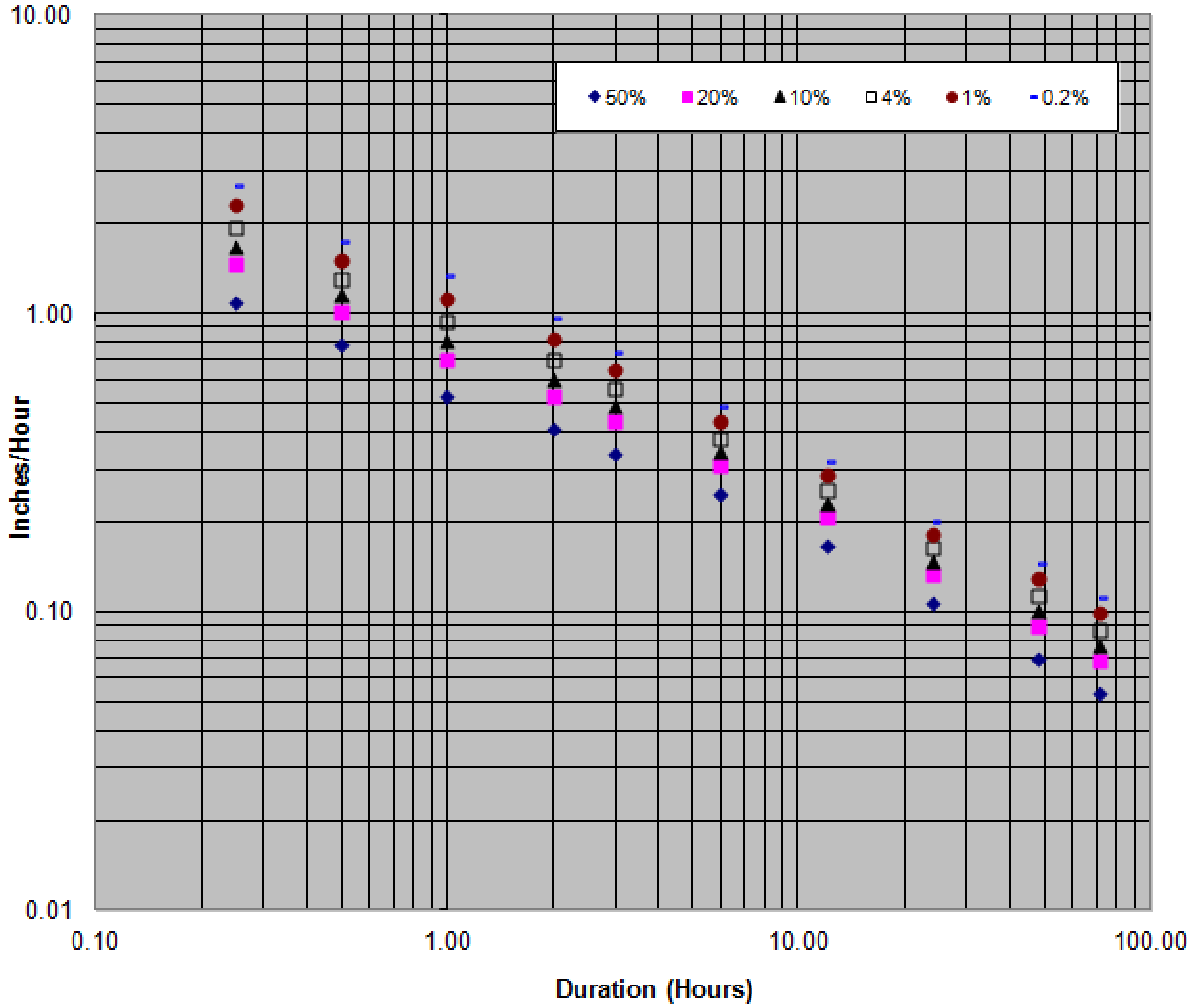

Figure B-33: Predicted Rainfall Intensity-Duration-Frequency relationship for Cow Ridge Precipitation Station (6127) based on the data recorded from 1978 to 2011

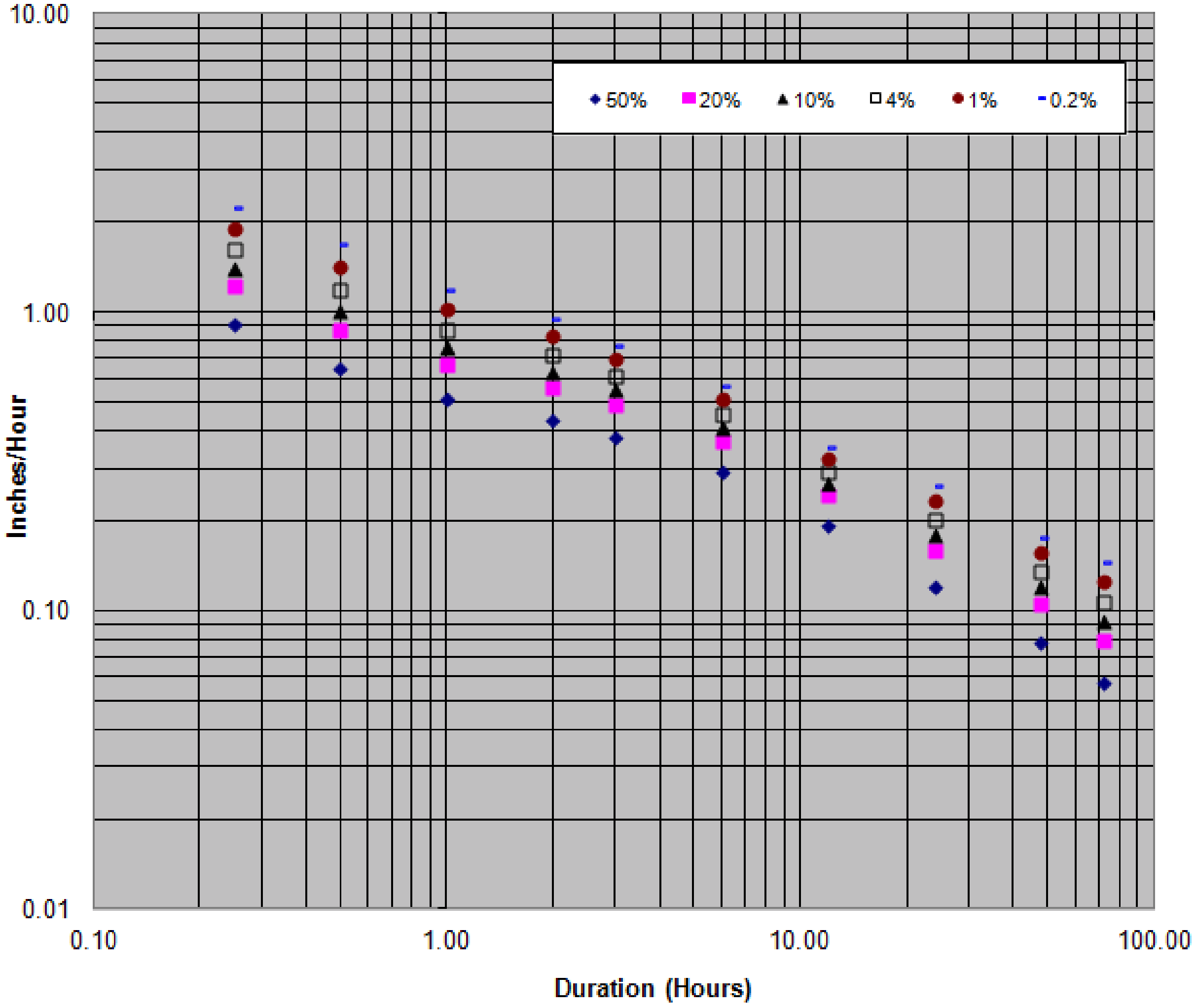

Figure B-34: Predicted Rainfall Intensity-Duration-Frequency relationship for Calero Precipitation Station (6128) based on the data recorded from 1979 to 2011

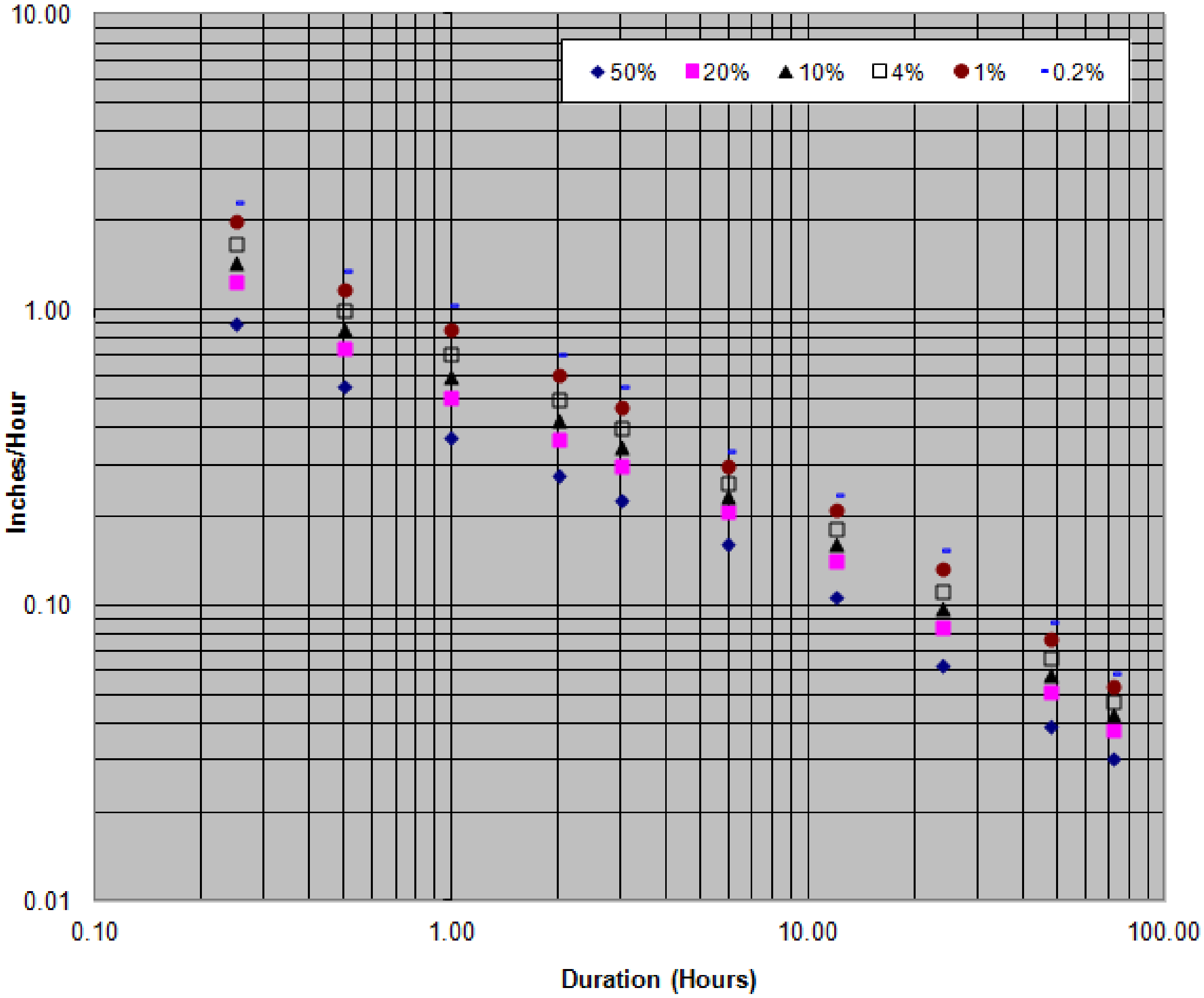

Figure B-35: Predicted Rainfall Intensity-Duration-Frequency relationship for Palo Alto Precipitation Station (6129) based on the data recorded from 1980 to 2011

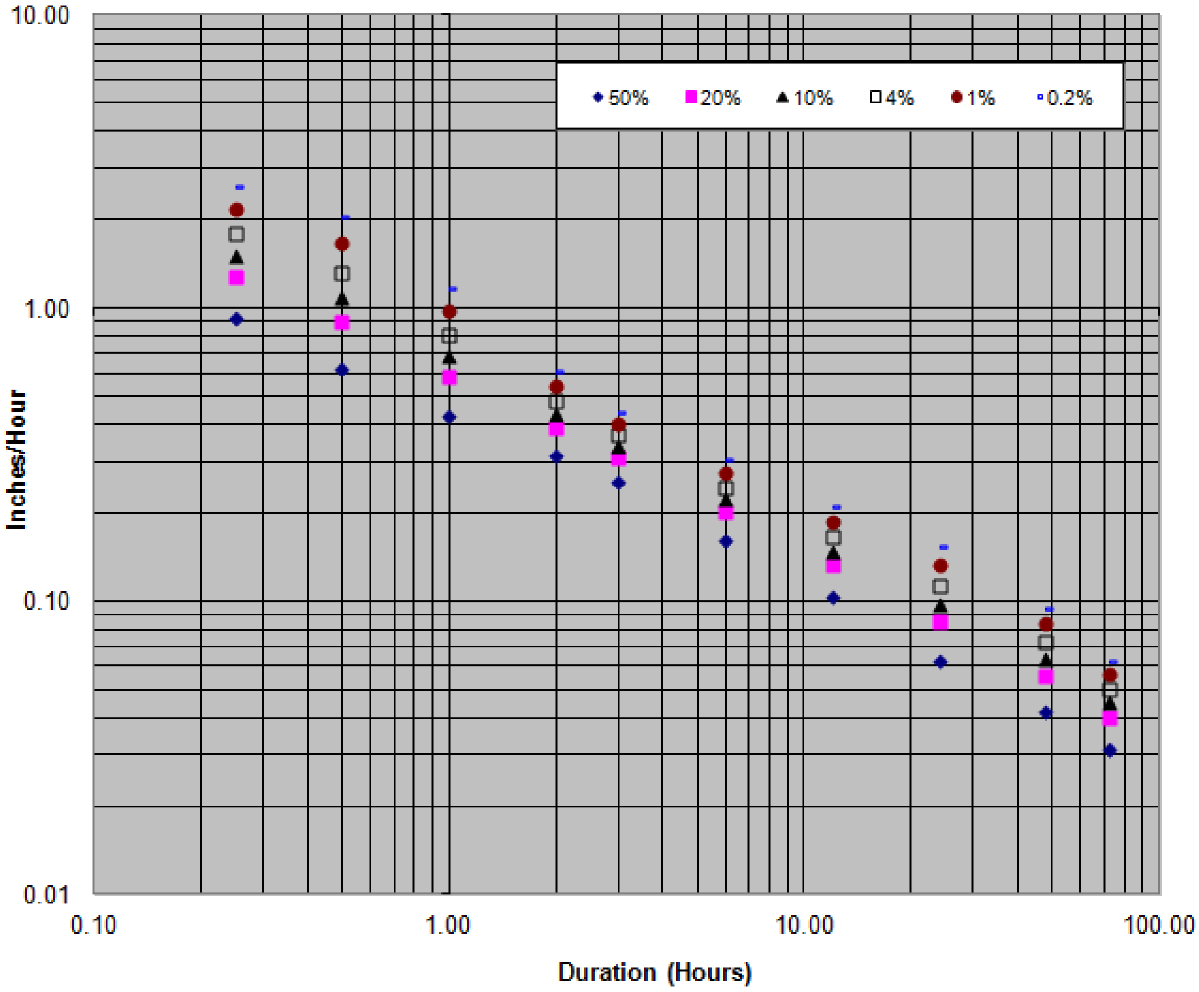

Figure B-36: Predicted Rainfall Intensity-Duration-Frequency relationship for City of San Jose Precipitation Station (6131) based on the data recorded from 1993 to 2011

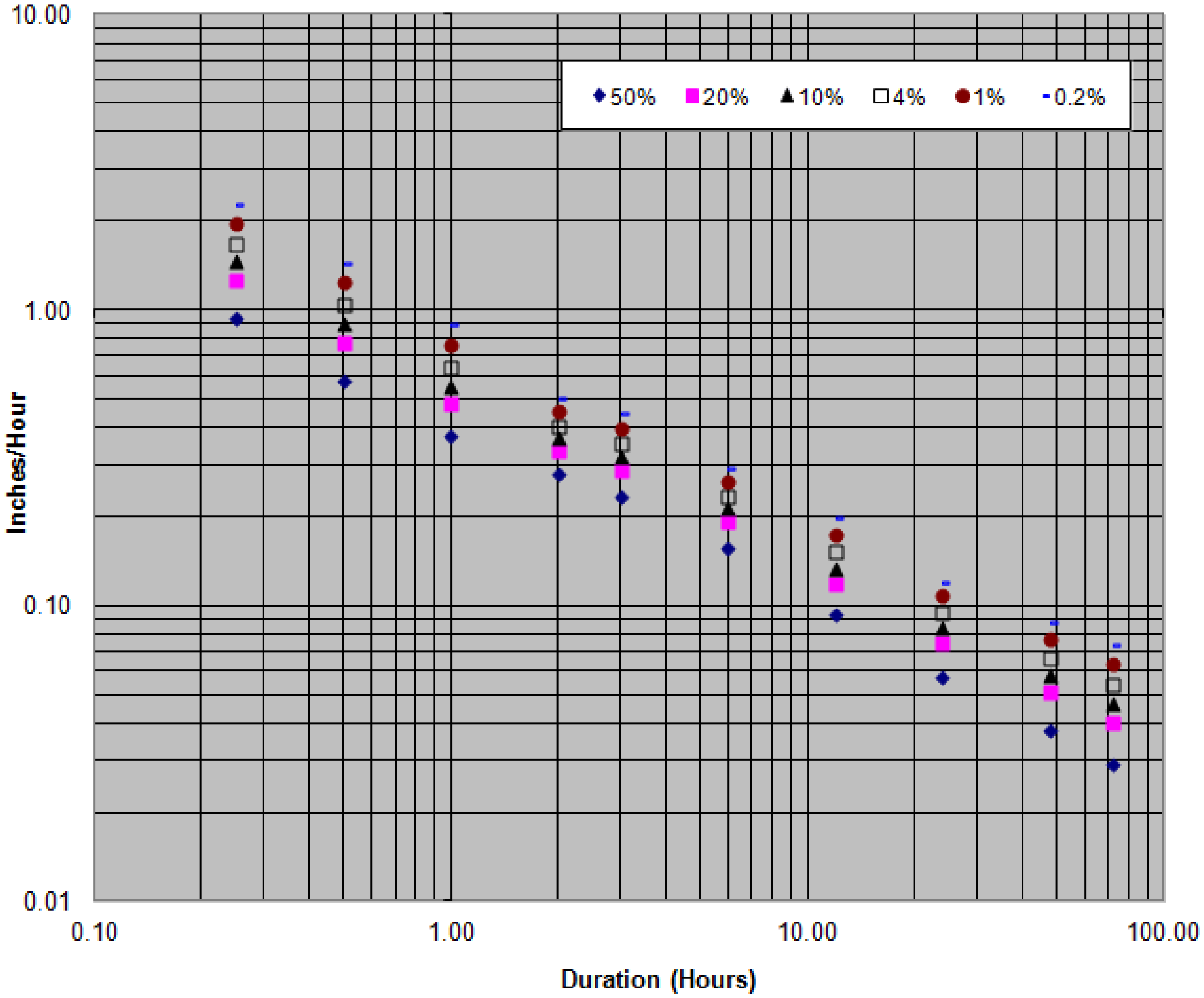

Figure B-37: Predicted Rainfall Intensity-Duration-Frequency relationship for Evergreen Precipitation Station (6132) based on the data recorded from 1988 to 2011

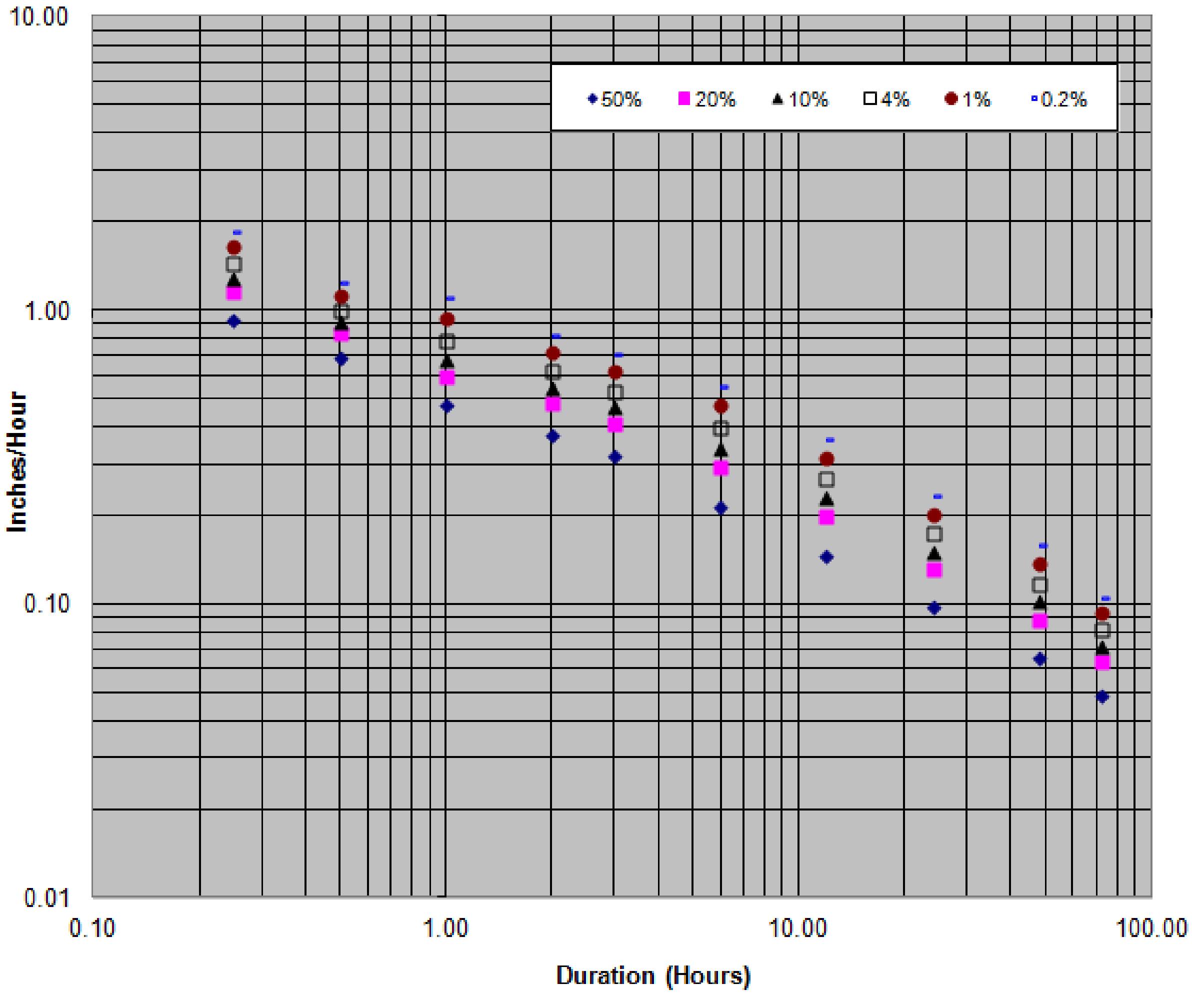

Figure B-38: Predicted Rainfall Intensity-Duration-Frequency relationship for Church Avenue Precipitation Station (6134) based on the data recorded from 1993 to 2011

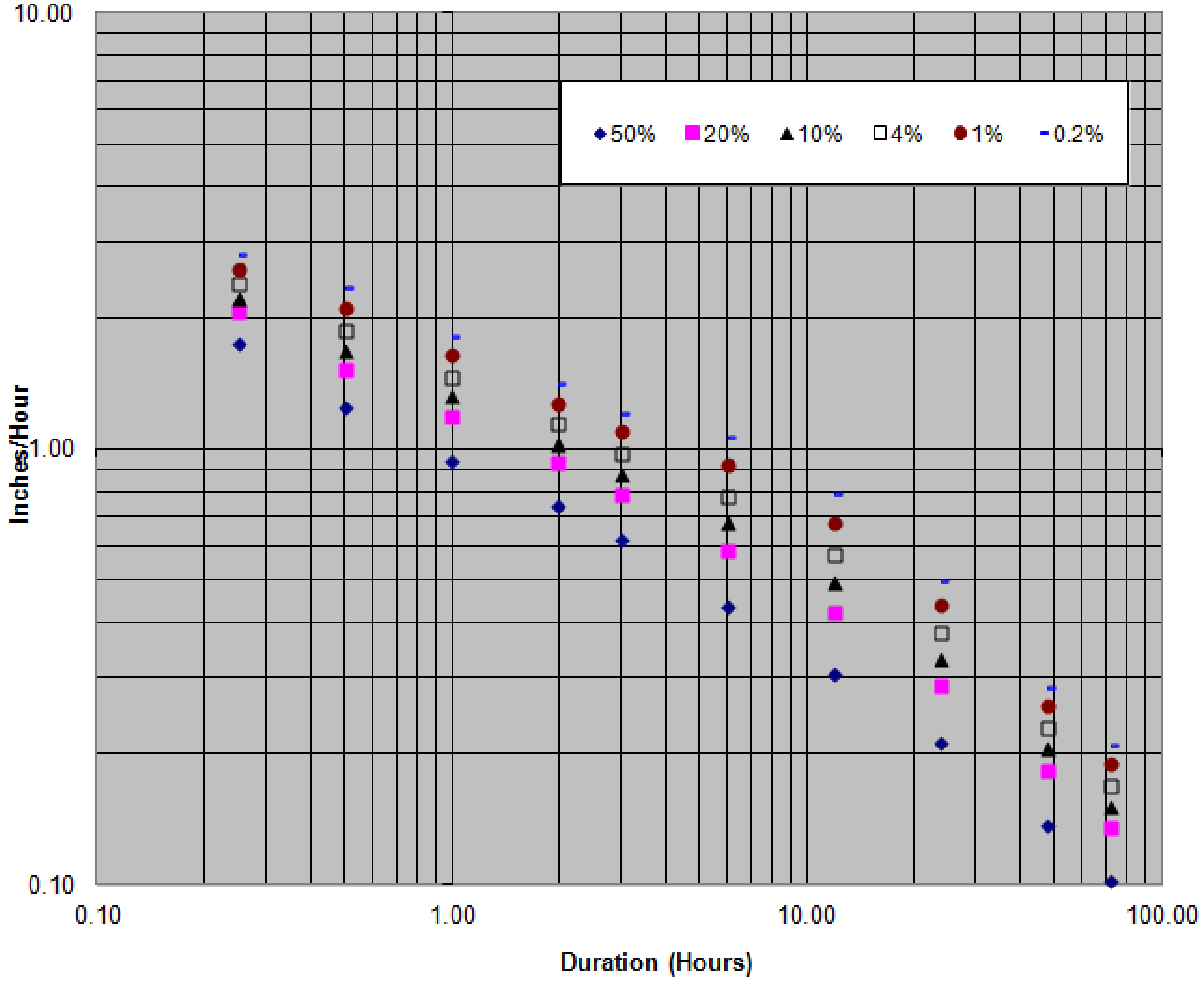

Figure B-39: Predicted Rainfall Intensity-Duration-Frequency relationship for Uvas Canyon Precipitation Station (6135) based on the data recorded from 1993 to 2011

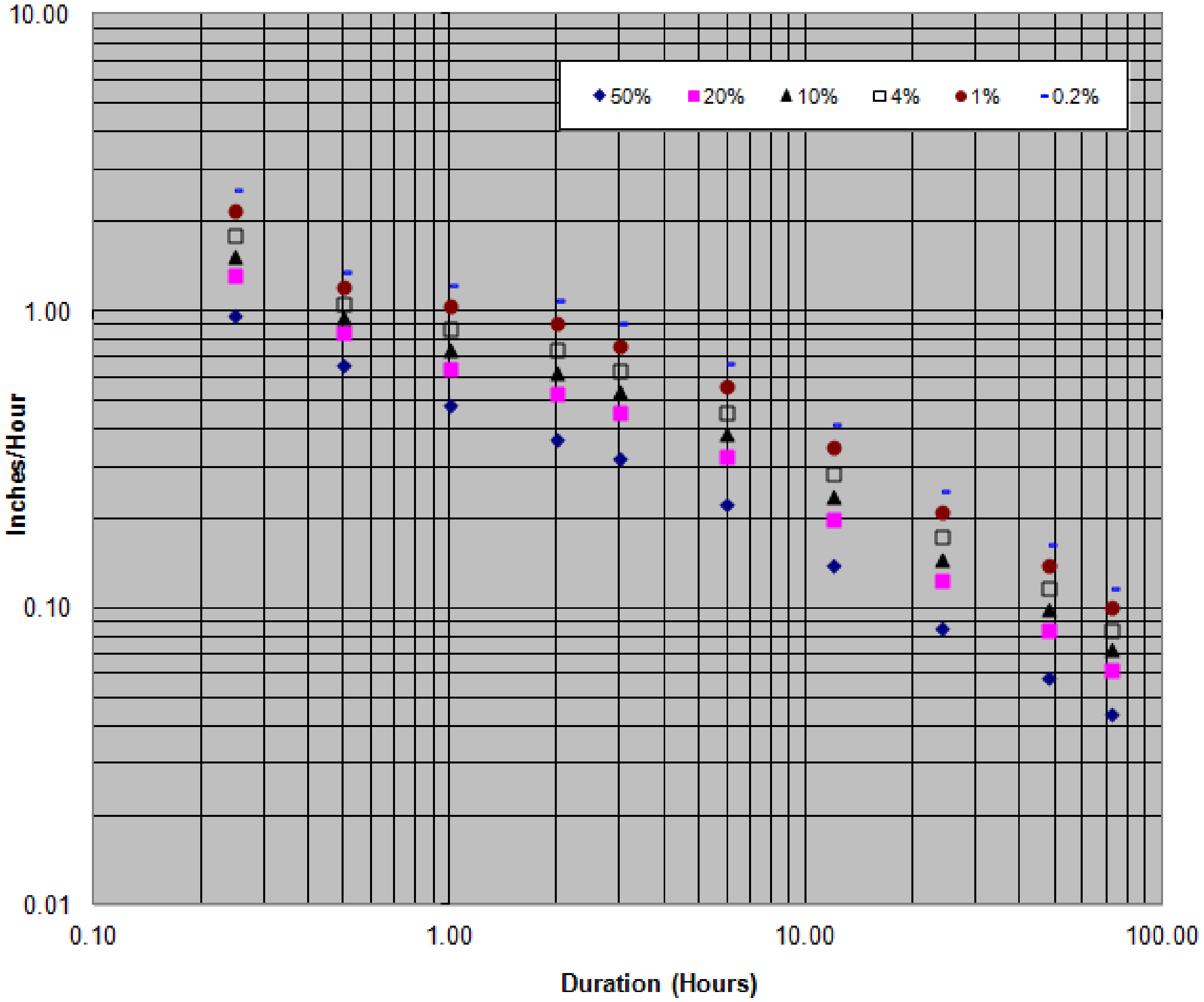

Figure B-40: Predicted Rainfall Intensity-Duration-Frequency relationship for Morgan Hill Precipitation Station (6136) based on the data recorded from 1998 to 2011